CRPL-F50

IONOSPHERIC DATA

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PREPARED BY CENTRAL RADIO PROPAGATION LABORATORY
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CRPL-F50 CENTRAL RADIO PROPAGATION LABORATORY
NATIONAL BUREAU OF STANDARDS
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CONTENTS

TERMINOLOGY AND SCALING PRACTICES

The symbols and terminology used in this report are those adopted by the International Radio Propagation Conference, and given in detail on pages 24 to 26 of the report IRPL-C61, "Report of International Radio Propagation Conference," and in the section on "Terminology" in report IRPL-F5.

Beginning with IRPL-F14 the symbol L, defined as follows, is used in detailed tabulations of hourly values of ionosphere characteristics observed at Washington:

L or l = critical frequency, muf, or muf factor for F1 layer omitted because no definite and abrupt change in slope of the h'f curve occurs either for the first reflection or for any of the multiples.

In the past, ionospheric conditions were summarized on a monthly basis by using average or mean values for each hour of the day for each month. However, following the recommendations of the International Radio Propagation Conference, held in Washington April 17 to May 5, 1944, beginning with data for January 1, 1945, median values are published wherever possible.

Where averages are reported, they are, at any hour, the average for all the days during the month for which numerical data exist.

The monthly median values used here are the values equaled or exceeded on half the days of the month at the given hour. The following conventions are used in determining the medians for hours when no measured values are given because of equipment limitations and ionospheric irregularities. Symbols used are those given in the report referred to above, IRPL-C61.

a. For all ionospheric characteristics:
Values missing because of A, B, C, or F (see terminology referred to above) are omitted from the median count.

b. For critical frequencies and virtual heights:
Values of f^oF2 (and f^oE near sunrise and sunset) missing because of E are counted as equal to or less than the lower limit of the recorder. Values of h'F2 (and h'E near sunrise and sunset) missing for this reason are counted as equal to or greater than the median. Other characteristics missing because of E are omitted from the median count. See CRPL-F38, page 9.
Values missing because of D are counted as equal to or greater than the upper limit of the recorder.
Values missing because of G are counted:
1. For f^oF2, as equal to or less than f^oF1.
2. For h'F2, as equal to or greater than the median.
Values missing for any other reason are omitted from the median count.

c. For muf factors (M-factors):
Values missing because of G are counted as equal to or less than the median.
Values missing for any other reason are omitted from the median count.

d. For sporadic E (Es):
Values of fEs missing because no Es reflections appeared, the equipment functioning normally otherwise, are counted as equal to or less than the median f^oE, or equal to or less than the lower frequency count of the recorder.
Values of fEs missing for any other reason, and values of hEs missing for any reason at all are omitted from the median count.

Beginning with data for November 1945, doubtful monthly median values for ionospheric observations at Washington, D. C., are indicated by parentheses, in accordance with the practice already in use for doubtful hourly values. The following are the conventions used to determine whether or not a median value is doubtful:

1. If only four values or less are available, the data are considered insufficient and no median value is computed.

2. For the F2 layer, if only five to nine values are available, the median is considered doubtful. The E and Fl layers are so regular in their characteristics that, as long as there are at least five values, the median is not considered doubtful.

3. For all layers, if more than half of the values used to compute the median are doubtful (either doubtful or interpolated), the median is considered doubtful.

The same conventions are used by the CRPL in computing the medians from tabulations of daily and hourly data for stations other than Washington, beginning with the tables in IRPL-F18.

Beginning with CRPL-F33, an additional group of symbols is used in recording the Washington, D. C., data. The list of additional symbols and their meanings follows:

N - unable to make logical interpretation.
P - trace extrapolated to a critical frequency.
Q - the Fl layer not present as a distinct layer.
R - curve becomes incoherent near the F2 critical frequency.
S - no observation obtainable because of interference.
V - forked record (previously denoted by U. This change should also be made in CRPL-7-1).
Z - triple split near critical frequency.

For a more detailed explanation of the meaning and use of these symbols, see the report CRPL-7-1, "Preliminary Instructions for Obtaining and Reducing Manual Ionospheric Records."

MONTHLY AVERAGE AND MEDIAN VALUES OF WORLD-WIDE IONOSPHERIC DATA

The ionospheric data given here in tables 1 to 38 and figures 1 to 75 were assembled by the Central Radio Propagation Laboratory for analysis and correlation, incidental to CRPL predictions of radio propagation conditions. The data are median values unless otherwise indicated. The following are the sources of the data in this issue:

Australian Department of Supply and Shipping, Bureau of Mineral Resources, Geophysical Section:
Watheroo, W. Australia

British Department of Scientific and Industrial Research, Radio Research Board:
Falkland Is.
Fraserburgh, Scotland
Lindau/Harz, Germany
Slough, England

Canadian Radio Wave Propagation Committee:
Ottawa, Canada
St. John's Newfoundland

New Zealand Radio Research Committee:
Christchurch, New Zealand (Canterbury University College Observatory)
Rarotonga I.

South African Council for Scientific and Industrial Research:
Johannesburg, Union of S. Africa

Japanese Physical Institute for Radio Waves (under supervision of Supreme Commander, Allied Powers):
Fukaura, Japan
Shibata, Japan
Tokyo (Kokobunji), Japan
Wakkanai, Japan
Yamakawa, Japan

United States Army Signal Corps:
Okinawa I.

National Bureau of Standards (Central Radio Propagation Laboratory):
Baton Rouge, Louisiana (Louisiana State University)
Boston, Massachusetts (Harvard University)
Guam I.
Huancayo, Peru (Instituto Geofisico de Huancayo)
Maui, Hawaii

National Bureau of Standards (CRPL): (Continued)
San Francisco, California (Stanford University)
San Juan, Puerto Rico (University of Puerto Rico)
Trinidad, British West Indies
Washington, D. C.
White Sands, New Mexico
Wuchang, China (National Wuhan University)

Radio Wave Research Laboratory, Central Broadcasting Administration:
Chungking, China
Lanchow, China
Nanking, China
Peiping, China

National Laboratory of Radio-Electricity (French Ionospheric Bureau):
Bagneux, France

Philippine Republic, Radio Control Division, Department of Commerce and Industry:
Leyte, Philippine Is.

The tables and graphs of ionospheric data are correct for the values reported to the CRPL, but, because of variations in practice in the interpretation of records and scaling and manner of reporting of values, may at times give an erroneous conception of typical ionospheric characteristics at the station. Some of these errors are due to:

a. Differences in scaling records when spread echoes are present.

b. Omission of values when f^oF2 is less than or equal to f^oF1, leading to erroneously high values of monthly averages or median values.

c. Omission of values when critical frequencies are less than the lower frequency limit of the recorder, also leading to erroneously high values of monthly average or median values.

These effects were discussed on pages 6 and 7 of the previous F-series report IRPL-F5.

The dashed-line prediction curves of the graphs of ionospheric data are obtained from the predicted zero-muf contour charts of the CRPL-D series publications. The following points are worthy of note:

a. Predictions for individual stations used to construct the charts may be more accurate than the values read from the charts since some smoothing of the contours is necessary to allow for the longitude effect within a zone. Thus, inasmuch as the predicted contours are for the center of each zone, part of the discrepancy between the predicted and observed values as given in the F series may be caused by the fact that the station is not centrally located within the zone.

b. The final presentation of the predictions is dependent upon the latest available ionospheric and radio propagation data, as well as upon predicted sunspot number.

c. There is no indication on the graphs of the relative reliability of the data; it is necessary to consult the tables for such information.

The following predicted smoothed 12-month running-average Zürich sunspot numbers were used in constructing the contour charts:

Month	Predicted Sunspot No.			
	1948	1947	1946	1945
December		126	85	38
November		124	83	36
October		119	81	23
September	117	121	79	22
August	123	122	77	20
July	125	116	73	
June	129	112	67	
May	130	109	67	
April	133	107	62	
March	133	105	51	
February	133	90	46	
January	130	88	42	

IONOSPHERIC DATA FOR EVERY DAY AND HOUR AT WASHINGTON, D. C.

The data given in tables 39 to 50 follow the scaling practices given in the report IRPL-C61, "Report of International Radio Propagation Conference," pages 36 to 39, and the median values are determined by the conventions given above under "Terminology and Scaling Practices."

IONOSPHERE DISTURBANCES

Table 51 presents ionosphere character figures for Washington, D. C., during September 1948, as determined by the criteria presented in the report IRPL-R5, "Criteria for Ionospheric Storminess," together with Cheltenham, Maryland, geomagnetic K-figures, which are usually covariant with them.

Table 52 lists for the stations whose locations are given the sudden ionosphere disturbances observed on the continuous field intensity recordings made at the Sterling Radio Propagation Laboratory during September 1948.

Table 53 lists for the stations whose locations are given the sudden ionosphere disturbances observed at the Point Reyes, California, receiving station of RCA Communications, Inc., for August 4, 8, and 16, and September 22 and 26, 1948.

Table 54 lists for the stations whose locations are given the sudden ionosphere disturbances observed at the Brentwood and Somerton, England, receiving stations of Cable and Wireless, Ltd., for July 29 and 30, August 30, and September 12, 16, 17, 19, 20, and 22, 1948.

Table 55 lists for the stations whose locations are given the sudden ionosphere disturbances observed at the Platanos, Argentina, receiving station of the International Telephone and Telegraph Corporation for July 6, 1948.

Table 56 gives provisional radio propagation quality figures for the North Atlantic and North Pacific areas, for 01 to 12 and 13 to 24 GCT, August 1948, compared with the CRPL daily radio disturbance warnings, which are primarily for the North Atlantic paths, the CRPL weekly radio propagation forecasts of probable disturbed periods, and the half-day Cheltenham, Maryland, geomagnetic K-figures.

The radio propagation quality figures are prepared from radio traffic and ionospheric data reported to the CRPL, in a manner basically the same as that described in IRPL-R31, "North Atlantic Radio Propagation Disturbances, October 1943 through October 1945," issued February 1, 1946. The scale conversions for each report are revised for use with the data beginning January 1948, and statistical weighting replaces what was, in effect, subjective weighting. Separate master distribution curves of the type described in IRPL-R31 were derived for the part of 1946 covered by each report; data received only since 1946 are compared with the master curve for the period of the available data. A report whose distribution is the same as the master is thereby converted linearly to the Q-figure scale. Each report is given a statistical weight which is the reciprocal of the departure from linearity. The half-daily radio propagation quality figure, beginning January 1948, is the weighted mean of the reports received for that period.

These radio propagation quality figures give a consensus of opinion of actual radio propagation conditions as reported by the half day over the two general areas. It should be borne in mind, however, that though the quality may be disturbed according to the CRPL scale, the cause of the disturbance is not necessarily known. There are many variables that must be considered. In addition to ionospheric storminess itself as the cause, conditions may be reported as disturbed because of seasonal characteristics, such as are particularly evident in the pronounced day and night contrast over North Pacific paths during the winter months, or because of improper frequency usage for the path and time of day in question. Insofar as possible, frequency usage is included in rating the reports. Where the actual frequency is not shown in the report to the CRPL, it has been assumed that the report is made on the use of optimum working frequencies for the path and time of day in question. Since there is a possibility

that all the disturbance shown by the quality figures is not due to ionospheric storminess alone, care should be taken in using the quality figures in research correlations with solar, auroral, geomagnetic, or other data. Nevertheless, these quality figures do reflect a consensus of opinion of actual radio propagation conditions as found on any one half day in either of the two general areas.

AMERICAN AND ZÜRICH PROVISIONAL RELATIVE SUNSPOT NUMBERS

Table 57 presents the daily American relative sunspot number, R_A, computed from observations communicated to CRPL by observers in America and abroad. Beginning with the observations for January 1948, a new method of reduction of observations is employed such that each observer is assigned a scale-determining "observatory coefficient," ultimately referred to Zürich observations in a standard period, December 1944 to September 1945, and a statistical weight, the reciprocal of the variance of the observatory coefficient. The daily numbers listed in the table are the weighted means of <u>all</u> observations received for each day. Details of the procedure will be published shortly. The American relative sunspot number computed in this way is designated R_A. It is noted that a number of observatories abroad, including the Zürich observatory, are included in R_A. The scale of R_A was referred specifically to that of the Zürich relative sunspot numbers in the standard comparison period; since that time, R_A is influenced by the Zürich observations only in that Zürich proves to be a consistent observer and receives a high statistical weight. In addition, this table lists the daily provisional Zürich sunspot numbers, R_Z.

SOLAR CORONAL INTENSITIES OBSERVED AT CLIMAX, COLORADO

In tables 58a and 58b are listed the intensities of the green (5303A) line of the emission spectrum of the solar corona as observed during September 1948 by the High Altitude Observatory of Harvard University and the University of Colorado at Climax, Colorado, for east and west limbs, respectively, at 5° intervals of position angle north and south of the solar equator at the limb computed to the nearest 5°. A correction, P, as listed, has been applied to the position angles of the actual observations which were on astronomical coordinates. The time of observation is given to the nearest tenth of a day, GCT. The tables of coronal observations in CRPL-F29 to F41 listed the data on <u>astronomical</u> coordinates; the present format on solar <u>rotation</u> coordinates is in conformity with the tables of CRPL-1-4, "Observations of the Solar Corona at Climax, 1944-46."

Tables 59a and 59b give similarly the intensities of the first red (6374A) coronal line; tables 60a and 60b list the intensities of the second red (6704A) coronal line. The following symbols are used in tables 58, 59 and 60: a, observation of low weight; -, corona not visible; and x, position angle not included in plate estimates.

ERRATUM

1. CRPL-F47, p. 19, table 34: The $f^{o}F2$ column should read (13.0) at 2100.

Table 1

Washington, D. C. (39.0°N, 77.5°W) September 1948

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	260	5.6						2.8
01	270	5.2						2.8
02	270	5.1						2.7
03	270	5.0						2.8
04	260	4.5						2.8
05	260	4.1						2.8
06	250	5.4			115	1.9		3.2
07	230	7.2			100	2.5		3.3
08	240	8.1	220		100	3.0		3.3
09	260	8.8	210		100	3.3		3.2
10	270	9.2	200	5.2	100	(3.6)		3.1
11	300	9.1	200	5.1	100	3.7		3.0
12	300	9.1	200		100	(3.8)		2.9
13	300	9.6	210	5.2	100	3.7		2.9
14	300	9.6	220	5.0	100	3.6		2.9
15	290	9.6	220		100	3.4		2.9
16	240	9.3	220		100	3.1		3.0
17	240	9.2	230		110	2.5		3.0
18	240	9.1			110	2.0		3.1
19	230	8.6						3.1
20	230	7.5						3.0
21	240	(6.7)						(2.9)
22	250	(6.2)						(2.9)
23	260	5.9						(2.8)

Time: 75.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 2

Lindau/Harz, Germany (51.6°N, 10.1°E) August 1948

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	300	5.9					3.4	
01	300	5.7					3.3	
02	300	5.4					3.4	
03	300	4.9					3.4	
04	300	4.7					3.2	
05	300	4.9					3.4	
06	280	6.0	230		115	2.2	3.5	
07	270	6.7	220		105	2.8	4.7	
08	300	7.4	210	4.6	105	3.0	4.9	
09	300	7.8	205	5.0	105	3.4	5.2	
10	320	8.0	205	5.3	100	3.5	4.8	
11	380	8.1	205	5.3	100	3.6	4.8	
12	380	8.2	210	5.3	100	3.6	4.7	
13	380	8.1	205	5.3	100	3.6	4.7	
14	315	7.9	210	5.4	100	3.6	4.1	
15	310	8.0	205	5.0	100	3.5	4.2	
16	310	7.7	210	4.8	100	3.4	4.4	
17	300	7.9	215		105	3.0	4.3	
18	280	8.2			105	2.6	4.1	
19	260	8.3					4.0	
20	280	8.0					4.7	
21	270	7.6					3.6	
22	280	7.0					3.4	
23	300	6.2					3.3	

Time: 15.0°E.
Sweep: 1.0 Mc to 16.0 Mc in 12 minutes.

Table 3

St. John's, Newfoundland (47.6°N, 52.7°W) August 1948

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	275	3.8					2.4	2.9
01	280	3.8					2.2	2.9
02	300	3.8					2.2	2.9
03	300	3.5					2.0	2.9
04	270	3.5					1.6	3.0
05	265	4.4					1.6	3.0
06	255	5.2	230	3.7	110	2.2		3.0
07	270	6.0	230	4.0	110	2.7		3.0
08	310	6.2	230	4.6	100	3.1	3.4	2.9
09	330	6.8	220	5.0	100	3.4	4.0	2.9
10	340	6.6	220	5.2	100	3.6	4.2	2.9
11	390	6.9	220	5.3	100	3.7	3.9	2.8
12	375	6.8	210	5.4	100	3.9		2.8
13	410	7.0	220	5.4	110	3.8	3.9	2.8
14	380	7.0	220	5.2	105	3.7	2.8	2.7
15	365	7.2	220	5.1	110	3.5	3.2	2.7
16	350	7.6	230	5.0	110	3.4		2.8
17	320	7.8	230	4.7	110	3.1		2.8
18	275	7.8	250	4.0	110	2.6	2.7	2.8
19	260	8.0			120	2.2	2.5	2.8
20	240	7.8					2.4	2.8
21	250	6.8					1.8	2.8
22	250	5.8					1.6	2.8
23	260	5.6					1.7	2.9

Time: 52.5°W.
Sweep: 1.2 Mc to 20.0 Mc, manual operation.

Table 4

Ottawa, Canada (45.5°N, 75.8°W) August 1948

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	320	4.6						2.7
01	320	4.3						2.8
02	320	4.0						2.9
03	330	3.8						2.9
04	320	3.8						2.9
05	300	4.0						2.9
06	280	5.2	260		110	2.4		2.9
07	280	5.6	235	4.4	110	2.6		2.9
08	338	6.2	225	4.7	110	3.1		2.8
09	390	6.5	220	4.9	110	3.4	4.8	2.7
10	410	6.6	210	5.2	110	3.5	4.9	2.6
11	430	6.6	210	5.2	110	3.6		2.6
12	450	6.8	210	5.3	110	3.7		2.5
13	460	7.0	220	5.2	110	3.7		2.5
14	460	6.8	230	5.2	110	3.7		2.5
15	450	6.9	220	5.1	110	3.6		2.5
16	410	6.9	240	4.9	110	3.3		2.6
17	360	7.0	260	4.6	110	3.0		2.6
18	280	7.1	250	4.0	120	2.4		2.7
19	280	7.2						2.7
20	270	7.0						2.7
21	275	6.5						2.7
22	290	5.6						2.8
23	300	4.9						2.7

Time: 75.0°W.
Sweep: 1.7 Mc to 18.0 Mc, manual operation.

Table 5

Boston, Massachusetts (42.4°N, 71.2°W) August 1948

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	305	5.6						2.6
01	300	5.2						2.5
02	300	4.9						2.6
03	310	4.7						2.5
04	295	4.4						2.6
05	290	4.7						2.7
06	295	5.5						2.9
07	300	6.0						2.8
08	305	6.4	250	4.6				2.7
09	350	6.8	240	4.8				2.6
10	330	6.7	240	5.0				2.6
11	475	7.0						2.5
12	490	7.1						2.4
13	470	7.0	245	5.1				2.4
14	380	6.8	245	4.9				2.5
15	395	6.9	275	4.8				2.6
16	355	6.7	275	4.8				2.6
17	340	7.0						2.7
18	300	6.8						2.7
19	290	7.0						2.7
20	290	6.9						2.6
21	295	6.6						2.5
22	280	6.1						2.6
23	295	5.8						2.6

Time: 75.0°W.
Sweep: 0.8 Mc to 14.0 Mc in 1 minute.

Table 6

San Francisco, California (37.4°N, 122.2°W) August 1948

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	320	5.1					2.6	2.5
01	320	4.9					2.5	2.5
02	320	4.9					2.3	2.5
03	320	4.9					2.1	2.5
04	300	4.7					2.3	2.5
05	310	4.3						2.5
06	260	5.5			130	2.1		2.7
07	240	6.4	240	4.3	120	2.7		2.7
08	390	7.3	230	4.8	120	3.1	4.0	2.6
09	340	8.0	220	5.2	120	3.4	4.3	2.6
10	360	8.2	220	5.3	120	3.6		2.6
11	380	8.4	220	5.4	120	3.8		2.5
12	360	8.8	220	5.4	120	3.9		2.6
13	360	8.9	220	5.4	120	4.0		2.6
14	360	8.7	220	5.4	120	3.9		2.6
15	360	8.4	230	5.3	120	3.7		2.6
16	340	8.1	240	5.0	120	3.3		2.7
17	280	7.8	240	4.6	120	3.0	3.9	2.7
18	260	7.9			120	2.4	3.1	2.8
19	260	7.6					3.0	2.8
20	250	6.8					3.1	2.7
21	260	6.2					2.8	2.7
22	280	5.6					2.6	2.6
23	300	5.3					2.9	2.6

Time: 120.0°W.
Sweep: 1.3 Mc to 18.5 Mc in 4 minutes 30 seconds.

Table 7

White Sands, New Mexico (32.3°N, 106.5°W) August 1948

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	305	5.5					3.2	2.5
01	300	5.2					2.4	2.5
02	300	5.2					2.2	2.5
03	280	5.1					2.2	2.6
04	290	4.8					2.3	2.6
05	280	4.4					3.2	2.6
06	265	5.9			120	2.2	3.8	2.8
07	255	7.2	230	4.2	120	2.7	4.4	2.8
08	325	8.3	220	5.0	110	3.3	5.0	2.7
09	350	9.1	215	5.4	110	3.5	5.1	2.6
10	380	9.2	210	5.6	110	3.8	5.0	2.5
11	375	9.8	220	5.5	120	3.9	5.1	2.5
12	380	10.0	220	5.6	120	4.0	4.6	2.5
13	375	10.0	220	5.7	120	4.0	4.5	2.5
14	370	9.8	220	5.6	120	3.9	4.8	2.5
15	360	9.6	220	5.4	120	3.7	4.6	2.6
16	350	9.2	225	5.1	120	3.4	4.7	2.7
17	290	9.1	240	4.6	110	3.0	4.4	2.7
18	260	8.8			120	2.3	3.8	2.8
19	255	8.2					3.3	2.8
20	255	7.2					3.2	2.7
21	260	6.5					3.6	2.7
22	280	5.7					3.1	2.6
23	300	5.6					2.4	2.5

Time: 105.0°W.
Sweep: 0.79 Mc to 14.0 Mc in 2 minutes.

Table 8

Wuchang, China (30.6°N, 114.4°E) August 1948

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	280	8.8					3.8	2.8
01	285	8.6					3.6	2.8
02	265	7.8					3.0	2.9
03	255	7.4					2.8	2.9
04	245	6.8					2.8	2.9
05	250	6.0					2.8	2.8
06	250	7.0			110	1.9	2.2	3.1
07	235	8.5			110	2.5	3.0	3.3
08	232	8.6	220		100	3.1	4.6	3.2
09	248	9.0	220	5.1	100	3.5	5.2	3.1
10	298	9.8	222	5.6	100	3.8	5.6	2.8
11	320	10.3	228	5.8	100	3.9	5.4	2.8
12	325	11.3	230	5.8	100	4.0	6.0	2.7
13	320	12.0	230	6.0	100	4.0	5.6	2.8
14	330	11.8	230	5.8	100	4.0	5.2	2.8
15	320	12.4	228	5.8	100	3.7	5.0	2.8
16	308	12.0	232	5.4	100	3.5	4.4	2.9
17	285	11.5	235	5.2	100	3.2	4.6	3.0
18	260	11.2			110	2.6	4.8	2.9
19	255	10.5					4.4	3.0
20	255	9.4					4.2	2.9
21	270	9.2					3.8	2.7
22	288	9.3					3.4	2.7
23	282	9.0					3.8	2.8

Time: 120.0°E.
Sweep: 1.2 Mc to 19.0 Mc in 15 minutes, automatic operation.

Table 9

Baton Rouge, Louisiana (30.5°N, 91.2°W) August 1948

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	300	6.1						2.8
01	300	5.8						2.9
02	290	5.6						2.9
03	290	5.5						2.9
04	290	5.0						2.9
05	290	5.0						2.9
06	270	6.3			120	2.2		3.1
07	290	7.4	230	4.2	120	3.0		3.1
08	300	8.0	220	(5.0)	110	3.4		3.0
09	310	8.5	210	5.2	110	3.7		3.0
10	330	8.9	210	(5.7)	120	3.8		2.9
11	340	9.5			110	3.8		2.8
12	350	9.6			110	3.8		2.8
13	340	9.6			110	(3.8)		2.8
14	340	9.5		(5.4)	120	3.7		2.9
15	330	9.4	220	(5.4)	120	3.7		2.9
16	320	8.8	220	(5.2)	120	3.5		2.9
17	300	8.6	230	(4.7)	120	3.1		3.0
18	280	8.6			120	2.6	3.6	3.0
19	250	8.4					2.7	3.1
20	240	7.4					2.4	3.0
21	260	6.8						3.0
22	280	6.2						2.9
23	295	6.1						2.8

Time: 90.0°W.
Sweep: 2.12 Mc to 15.3 Mc in 5 minutes, automatic operation.

Table 10

Okinawa I. (26.3°N, 127.7°E) August 1948

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00		8.6					3.8	2.8
01		8.7					3.8	2.8
02		8.5					3.5	3.0
03		8.0					3.3	3.0
04		7.0					3.2	2.8
05		6.6					3.6	2.9
06		7.0					3.4	3.0
07		8.5					3.6	3.2
08		9.0					5.0	3.2
09		8.9					5.0	3.0
10		9.8		(5.6)			5.0	2.7
11		11.0		5.8			5.0	2.7
12		11.0					5.2	2.8
13		12.2		(5.7)			5.0	2.8
14		12.8		5.7			5.0	2.9
15		11.5					5.0	2.8
16		11.7					5.2	2.8
17		10.6					4.9	2.8
18		10.1					4.7	2.9
19		10.4					4.3	2.9
20		10.0					4.1	2.8
21		(8.4)					3.6	(2.7)
22		8.2					3.7	2.6
23		8.8					3.9	(2.6)

Time: 135.0°E.
Sweep: 2.0 Mc to 18.0 Mc in 15 minutes, manual operation.

Table 11

Maui, Hawaii (20.8°N, 156.5°W) August 1948

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	240	8.4						3.0
01	250	7.7						3.0
02	240	7.3						2.9
03	225	7.6						3.2
04	240	6.4						3.2
05	230	5.9						3.1
06	240	5.7						3.1
07	220	7.0			110	2.6		3.4
08	200	8.0			110	3.0	3.9	3.3
09	260	9.2	200	5.9	110	3.4	4.5	2.9
10	300	10.4	200	5.8	100	3.7	5.0	2.7
11	310	11.4	200	5.7	110	4.0	4.7	2.8
12	310	12.0	200	6.0	110	4.0	4.8	2.9
13	300	12.6	200	5.7	110	4.1	4.9	2.9
14	300	12.8	200	5.6	100	4.0	5.0	3.0
15	290	13.2	200	5.4	100	3.8	4.8	3.0
16	270	12.6	200		100	3.6	4.8	3.1
17	250	12.4	200		100	3.1	4.8	3.2
18	220	12.0			100	2.5	4.4	3.2
19	210	11.2					3.4	3.2
20	220	10.4					3.3	3.1
21	220	10.1						3.0
22	240	9.8						3.0
23	250	9.0						3.1

Time: 150.0°W.
Sweep: 2.2 Mc to 16.0 Mc in 1 minute.

Table 12

San Juan, Puerto Rico (18.4°N, 66.1°W) August 1948

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00		8.0						2.7
01		7.9						2.8
02		7.4						2.9
03		7.1						2.9
04		6.7						2.9
05		6.3						3.0
06		6.9						3.1
07	235	7.2						3.1
08	240	8.0				3.1		3.0
09	280	8.7		4.6		3.5		2.8
10	335	9.2		5.1		3.8		2.6
11	350	10.1		5.3		3.9		2.5
12	350	11.0		5.6		4.0		2.6
13	350	11.2		5.5		4.0		2.6
14	350	11.2		5.4		3.9		2.6
15	340	11.0		5.2		3.8		2.6
16	330	11.1		5.1		3.5	4.3	2.7
17	300	10.3				3.1	4.2	2.7
18	270	10.0						2.8
19	270	9.6						2.7
20		9.0						2.7
21		8.6						2.7
22		8.3						2.7
23		8.2						2.7

Time: 60.0°W.
Sweep: 2.8 Mc to 13.0 Mc in 9 minutes; supplemented by manual operation.

Table 13

Guam I. (13.6°N, 144.9°E) August 1948

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	310	(10.7)					2.3	(2.7)
01	(260)							
02	(230)							
03	(260)							
04								
05	(220)						(1.7)	
06	(245)	(5.9)					(2.4)	(3.1)
07	245	8.4					3.5	3.0
08	230	9.6					3.8	2.9
09	220	10.3					4.6	2.7
10	205	10.9					5.0	2.5
11	220	11.4	(220)				4.9	2.4
12	210	12.0	210	6.1			5.0	2.3
13	215	12.6		6.2			5.0	2.3
14	385	13.1	205	6.2			5.0	2.4
15	390	13.7	220	6.1			5.0	2.4
16	380	13.6	225	6.1			5.0	2.5
17	250	14.0	240				5.2	2.6
18	260	13.6					5.0	2.6
19	310	12.8					4.9	2.4
20	375	(11.0)					3.4	(2.4)
21	335	(10.7)					2.5	(2.5)
22	315						2.5	
23	315	(10.7)					2.0	(2.6)

Time: 150.0°E.
Sweep: 1.25 Mc to 19.0 Mc in 12 minutes, manual operation.

Table 14

Trinidad, Brit. West Indies (10.6°N, 61.2°W) August 1948

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	280	9.3						2.8
01	260	9.0						2.9
02	270	8.4						2.8
03	260	8.0						2.8
04	250	7.4						2.9
05	250	6.8						2.9
06	260	7.0			120	1.6	2.3	3.0
07	250	7.8			120	2.6	3.0	3.2
08	250	8.4	230	4.6	120	3.2	3.8	3.0
09	280	9.2	220	5.1	120	3.6	4.4	2.8
10	330	10.0	220	5.5	120	3.8	4.4	2.6
11	360	11.0	220	5.9	120	4.1	4.6	2.6
12	360	11.8	220	5.8	120	4.1	4.8	2.6
13	350	12.2	220	5.9	120	4.1	4.7	2.7
14	360	12.3	220	5.9	120	4.1	5.0	2.7
15	340	12.0	230	5.5	120	3.8	4.9	2.7
16	320	11.2	240	5.2	120	3.4	4.8	2.7
17	300	11.0	240	5.0	120	2.9	4.7	2.6
18	270	10.9			120	2.2	3.6	2.7
19	280	10.3					3.3	2.6
20	300	10.4					2.7	2.6
21	290	10.6					2.2	2.7
22	280	10.0						2.7
23	280	9.8						2.7

Time: 60.0°W.
Sweep: 1.2 Mc to 18.0 Mc, manual operation.

Table 15

Huancayo, Peru (12.0°S, 75.3°W) August 1948

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	250	8.1						2.8
01	240	7.8						3.0
02	250	7.0						3.0
03	250	6.0						2.9
04	270	5.0						2.9
05	270	4.5						2.9
06	300	5.6				1.5		2.8
07	270	8.6				2.7		2.9
08	250	10.4				3.2	7.1	2.7
09	245	11.2	240	5.5		3.8	10.8	2.4
10	235	11.2	230	5.5		4.0	11.9	2.3
11	230	10.9	220	5.4		4.1	12.0	2.2
12	230	10.9	220	5.4			12.2	2.2
13	230	10.7	220	5.4			12.2	2.1
14	220	10.4				4.0	12.2	2.1
15	230	10.0				3.8	11.9	2.1
16	240	9.7				3.2	7.0	2.1
17	280	9.6				2.5		2.2
18	320	9.6				1.3		2.2
19	380	8.7						2.2
20	350	8.8						2.3
21	300	8.5						2.5
22	260	8.4						2.7
23	250	7.9						2.8

Time: 75.0°W.
Sweep: 16.0 Mc to 0.5 Mc in 15 minutes, automatic operation.

Table 16

Johannesburg, Union of S. Africa (26.2°S, 28.0°E) August 1948

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	(265)	3.3						2.9
01	(285)	3.2						2.9
02	(270)	3.3						2.9
03	(250)	3.3						2.9
04	(270)	3.1						2.8
05	(270)	3.1					1.7	2.9
06	(260)	3.5						2.9
07	230	6.9				2.1		3.3
08	230	9.1	230		110	2.9		3.3
09	250	10.2	220		110	3.4		3.1
10	260	11.3	220	5.0	110	3.6		3.1
11	260	11.5	210	5.0	110	3.8		3.0
12	270	11.4	210	5.0	110	3.8		2.9
13	270	11.3	210	5.0	110	3.8		2.8
14	290	11.3	210	4.7	110	3.6	3.7	2.8
15	270	11.1	210	4.5	110	3.4	3.6	2.9
16	250	10.9	230		110	3.1		2.9
17	240	10.4	230		100	2.5		2.9
18	230	10.1			100	(1.7)		3.0
19	220	8.5					1.8	3.1
20	220	6.8						3.2
21	230	5.1						3.2
22	(250)	4.2						3.0
23	(250)	3.6					1.6	3.0

Time: 30.0°E.
Sweep: 1.0 Mc to 15.0 Mc in 7 seconds.

Table 17

St. John's, Newfoundland (47.6°N, 52.7°W) July 1948

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	280	6.6						2.7
01	280	5.7						2.7
02	280	5.2						2.8
03	280	4.6						2.8
04	270	4.8					1.7	2.9
05	260	5.2	250	3.3	120	2.2	2.3	2.9
06	270	5.8	230	4.0	110	2.6	2.7	2.9
07	305	6.0	225	4.6	110	3.0	4.1	2.9
08	330	6.3	220	4.9	100	3.4	4.4	2.9
09	390	6.6	210	5.1	100	3.6	4.4	2.8
10	385	6.6	210	5.3	100	3.7	4.4	2.8
11	380	6.6	210	5.4	100	3.9	4.4	2.7
12	410	6.9	210	5.5	100	4.0	4.5	2.8
13	450	6.6	210	5.5	100	3.9	4.4	2.7
14	420	6.8	200	5.4	100	3.9	4.1	2.7
15	410	7.0	210	5.4	100	3.7	3.8	2.7
16	385	7.0	210	5.2	100	3.6	3.5	2.7
17	360	7.1	220	4.9	110	3.3	3.8	2.7
18	310	7.4	230	4.4	110	2.8	4.2	2.8
19	270	7.5	235	3.4	110	2.4	3.7	2.8
20	260	7.7			105	2.0	2.2	2.8
21	250	7.8					2.2	2.7
22	270	7.5					1.4	2.7
23	270	7.2					1.5	2.7

Time: 52.5°W.
Sweep: 1.2 Mc to 20.0 Mc, manual operation.

Table 18

Ottawa, Canada (45.5°N, 75.8°W) July 1948

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	310	6.0						2.6
01	300	5.4						2.7
02	320	5.1						2.7
03	315	4.7						2.7
04	300	4.4						2.7
06	280	4.9						2.7
06	270	5.6	255	4.1	120	2.6		2.7
07	370	6.0	240	4.6	120	3.0	3.6	2.7
08	360	6.6	230	4.9	110	3.3		2.7
09	430	6.6	220	5.2	110	3.5	4.8	2.6
10	465	7.2	220	5.4	110	3.6		2.5
11	460	6.8	210	5.3	110	3.6	5.1	2.5
12	466	6.8	220	5.4	110	3.8	4.5	2.6
13	470	6.9	210	5.3	110	3.8		2.5
14	450	7.0	220	5.3	110	3.6		2.5
15	445	7.1	220	5.3	110	3.6		2.6
16	420	7.0	240	6.1	110	3.4		2.6
17	370	7.4	240	4.9	120	3.1		2.6
18	326	7.3	250	4.3	120	2.8		2.7
19	280	7.4			130	2.2		2.7
20	280	7.6						2.6
21	280	7.6						2.6
22	280	7.0						2.6
23	300	6.6						2.6

Time: 75.0°W.
Sweep: 1.7 Mc to 18.0 Mc, manual operation.

Table 19

Wakkanai, Japan (45.4°N, 141.7°E) July 1948

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	280	8.1					3.3	2.7
01	280	8.0					3.2	2.7
02	280	7.4					3.3	2.7
03	280	7.2					3.0	2.7
04	290	7.2					3.1	2.7
05	280	7.9	220		100	2.4	3.5	2.8
06	285	8.5	210	4.2	100	2.9	3.8	2.8
07	300	8.6	210	4.6	100	3.2	5.0	2.9
08	300	8.1		5.0	100	3.6	6.0	2.9
09	360	7.8	200	5.2			6.7	2.8
10	385	7.6	200	5.3			6.6	2.7
11	380	8.0	200	5.6			6.5	2.7
12	390	8.0	200	5.6			5.8	2.7
13	380	7.9	200	5.5	100		5.8	2.8
14	380	7.7	200	5.4			5.5	2.8
15	365	7.6	200	5.1			5.4	2.8
16	320	7.6	200	4.9	100	3.5	5.3	2.9
17	310	7.5	210	4.6	100	3.3	4.8	2.9
18	300	7.9			100	2.7	5.6	2.9
19	280	7.9					5.3	2.8
20	270	7.9					4.4	2.8
21	270	8.2					5.0	2.7
22	280	8.2					4.4	2.7
23	280	8.1					3.4	2.7

Time: 135.0°E.
Sweep: 1.0 Mc to 17.0 Mc, manual operation.

Table 20

Fukaura, Japan (40.6°N, 139.9°E) July 1948

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	310	8.3					4.0	2.6
01	300	8.0					3.8	2.6
02	295	7.9					3.8	2.6
03	300	7.4					3.4	2.6
04	300	7.8					3.2	2.6
05	285	8.1	250		120	2.2	3.0	2.7
06	280	8.8	240		110	2.7	4.0	2.8
07	300	9.3			110	3.1	4.4	2.9
08	320	8.9			110	3.6	5.5	2.8
09	370	8.5			110		6.0	2.7
10	390	8.4			110		6.4	2.6
11	(395)	8.4			110		7.6	2.6
12	395	8.9					7.5	2.6
13	380	8.6					6.8	2.6
14	385	8.6					6.2	2.7
15	370	8.2					5.8	2.7
16	365	8.0			110	3.6	5.9	2.7
17	340	7.9			110	3.2	4.8	2.8
18	300	8.2	245		110	2.5	4.8	2.8
19	290	8.3					5.6	2.8
20	300	7.8					5.8	2.6
21	300	8.0					5.6	2.6
22	310	8.2					4.0	2.6
23	310	8.3					4.7	2.6

Time: 135.0°E.
Sweep: 1.0 Mc to 17.0 Mc, manual operation.

Table 21

Peiping, China (39.9°N, 116.4°E) July 1948

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00								
01								
02		8.0						
03		8.2						
04		8.2						
05		8.4						
06		8.8						
07		7.6						
08								
09								
10		11.3						
11		11.6						
12		11.5						
13		11.2						
14		11.1						
15		11.3						
16								
17								
18		10.6						
19		10.0						
20		9.4						
21		8.9						
22		8.5						
23		8.4						

Time: 120.0°E.
Sweep: 2.3 Mc to 14.5 Mc in 15 minutes, manual operation.

Table 22

Shibata, Japan (37.9°N, 139.3°E) July 1948

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	280	8.4					3.5	2.8
01	270	8.3					3.8	2.8
02	270	7.9					3.2	2.8
03	270	7.7					2.9	2.8
04	280	7.5	240				3.1	2.8
05	250	8.0	235		110	2.0	3.0	2.9
06	240	9.2	215		100	2.8	3.6	3.0
07	270	9.4	220		100	3.3	4.6	3.0
08	295	9.0	215	5.0	100	3.6	5.7	2.9
09	300	9.0	210	5.4	100	3.7	6.3	2.8
10	345	9.0	200	5.6	100	3.9	8.0	2.7
11	380	9.1	190	5.8	100	4.0	8.2	2.7
12	350	9.7	200	5.6	100	4.1	8.0	2.8
13	330	9.8	200	5.7	100		7.4	2.8
14	330	9.6	200	5.6	100	4.0	7.0	2.9
15	330	9.0	205	5.5	100	3.9	6.7	2.9
16	320	8.7	200	5.2	100	3.7	5.4	2.9
17	300	8.4	210		100	3.2	6.5	3.0
18	270	8.7	220		100	2.7	5.1	3.0
19	250	8.7					5.2	3.0
20	260	8.1					4.5	2.8
21	280	8.4					4.8	2.8
22	280	8.2					4.4	2.7
23	290	8.7					3.7	2.7

Time: 135.0°E.
Sweep: 1.0 Mc to 17.0 Mc in 15 minutee, manual operation.

Table 23

Tokyo, Japan (35.7°N, 139.5°E) July 1948

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	320	8.6					4.0	2.6
01	310	8.2					3.5	2.6
02	300	7.9					3.4	2.6
03	310	7.6					3.1	2.6
04	310	7.4				E	3.0	2.7
05	290	8.0	270			2.0	3.4	2.8
06	280	8.7	250		100	2.7	3.8	2.8
07	290	9.4	240		100	3.3	5.2	2.8
08	310	8.8	240		110	3.6	6.0	2.6
09	360	8.6	230		100	3.8	6.2	2.6
10	395	8.8	230	5.5	110	4.0	7.0	2.6
11	410	9.3			110	4.3	7.6	2.5
12	420	9.6			100	(4.2)	7.2	2.5
13	400	10.4		6.0	100	4.0	7.0	2.6
14	390	9.9			105		6.8	2.6
15	370	9.2	235		100		5.6	2.6
16	340	8.8	240	5.3	100	3.6	5.4	2.7
17	320	8.8	235	5.0	100	3.2	5.1	2.7
18	305	8.6	260		110	2.6	5.4	2.8
19	290	8.3					4.5	2.8
20	290	7.9					5.6	2.6
21	330	8.0					5.7	2.5
22	330	8.1					4.6	2.5
23	330	8.3					5.4	2.5

Time: 135.0°E.
Sweep: 1.0 Mc to 17.0 Mc in 15 minutee, manual operation.

Table 24

Yamakawa, Japan (31.2°N, 130.6°E) July 1948

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	300	9.3					4.2	2.6
01	300	9.0					4.6	2.7
02	290	8.9					4.2	2.7
03	290	8.3					3.4	2.6
04	300	7.9					3.8	2.6
05	290	7.8					3.4	2.8
06	270	8.4	240			(2.0)	3.4	2.9
07	265	9.1	230		110	2.8	4.2	3.0
08	280	8.6	240		110	3.4	5.6	2.9
09	340	8.5	230		110	3.8	5.3	2.7
10	375	8.7	240		110		6.2	2.6
11	410	9.3	220	5.4		(4.2)	6.2	2.4
12	400	10.4	210	5.6			6.6	2.5
13	390	10.8	235	5.8	110		5.9	2.6
14	370	10.6	230	5.6			5.8	2.6
15	285	10.6	230	5.4		(4.0)	5.3	2.6
16	360	10.3	230	5.2	110	3.8	5.2	2.7
17	330	9.9	230	4.8	110	3.4	5.3	2.7
18	300	9.8	230		110	2.8	5.0	2.8
19	285	9.4	240			2.0	5.5	2.8
20	285	8.6					4.2	2.7
21	320	8.7					4.0	2.5
22	320	8.8					3.7	2.6
23	(310)	9.0					4.9	2.5

Time: 135.0°E.
Sweep: 0.6 Mc to 18.5 Mc in 15 minutes, manual operation.

Table 25

Chungking, China (29.4°N, 106.8°E) July 1948

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	320	9.6					4.0	2.5
01	310	9.6					3.8	2.6
02	290	9.0					4.0	2.7
03	285	8.0					4.2	2.6
04	290	7.3					4.0	2.6
05	285	7.4					3.2	2.6
06	260	8.2	260		110	3.5	4.7	2.8
07	280	9.0	250		110	3.1	5.6	2.9
08	280	9.0	240				7.2	2.6
09	340	9.1	240	5.8	100	3.8	8.0	2.5
10	390	9.6	250	6.4	100	4.0	8.3	2.4
11	400	10.6	260	6.4	105	4.2	8.2	2.4
12	400	11.7	250	6.2	115	4.5	8.0	2.4
13	400	12.4	240	6.0	110	4.4	6.4	2.4
14	380	12.5	240	6.0	120	4.3	5.9	2.5
15	360	13.0	230	5.6	120	4.0	4.8	2.6
16	340	12.5	260	5.5	110	3.6	5.2	2.6
17	320	12.5	240	5.0	100	3.2	5.7	2.6
18	300	12.0	260				4.9	2.6
19	280	10.5					4.5	2.6
20	300	9.6					4.2	2.5
21	310	9.4					3.0	2.5
22	320	9.8					4.6	2.5
23	300	9.8					5.0	2.5

Time: 105.0°E.
Sweep: 1.7 Mc to 20.0 Mc in 15 minutes, manual operation.

Table 26

Okinawa I. (26.3°N, 127.7°E) July 1948

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00		9.4					4.4	2.8
01		9.5					3.9	2.9
02		8.8					3.2	2.9
03		8.4					3.1	2.9
04		7.9					2.8	2.9
05		7.4					3.0	2.9
06		7.9					3.9	3.1
07		8.6					4.4	3.2
08		8.2					5.3	3.1
09		8.4					5.4	2.8
10		8.7		(6.0)			5.7	2.6
11		10.0		6.0			5.8	2.5
12		10.8		6.0			5.8	2.6
13		11.2		5.8			5.4	2.7
14		11.2		6.0			6.0	2.7
15		11.4		5.8			5.4	2.6
16		10.8		6.1			5.4	2.7
17		11.2					5.8	2.8
18		11.2					5.0	2.9
19		10.2					4.8	2.9
20		9.4					3.6	2.7
21		9.2					4.0	2.5
22		9.0					3.2	2.6
23		9.3					3.7	2.7

Time: 135.0°E.
Sweep: 2.0 Mc to 18.0 Mc in 15 minutes, manual operation.

Table 27

Leyte, Philippine Is. (11.0°N, 125.0°E) July 1948

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00		8.8					2.8	2.7
01		8.4					2.0	2.8
02		8.4						2.9
03		7.6						3.0
04		6.4						3.1
05		5.6					1.9	3.1
06		7.9				2.5	3.4	3.0
07		9.3				3.6	4.6	2.8
08		10.2				3.7	5.0	2.5
09		10.6				4.2	5.1	2.3
10		10.6				4.6	5.2	2.2
11		10.6				4.7	5.5	2.2
12		10.6				4.8	5.5	2.2
13		10.6				4.6	5.7	2.2
14		11.2				4.4	5.3	2.1
15		11.4				4.0	5.0	2.2
16		11.5				3.7	5.0	2.3
17		11.5				2.9	4.5	2.3
18		11.1					3.6	2.3
19		10.3					3.2	2.2
20		9.0					2.0	2.2
21		8.8					2.0	2.2
22		9.0					2.0	2.4
23		8.8					2.8	2.6

Time: 120.0°E.
Sweep: 1.6 Mc to 16.0 Mc, manual operation.

Table 28

Johannesburg, Union of S. Africa (26.2°S, 28.0°E) July 1948

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	(290)	2.9						2.8
01	285	3.0						2.8
02	275	3.0						2.9
03	(260)	3.1						3.0
04	(250)	2.9						2.9
05	265	2.7					1.9	2.9
08	250	2.8					2.3	3.0
07	230	5.8				1.9		3.2
08	230	8.3			110	2.7		3.3
09	250	10.0	230	(3.8)	110	3.1		3.3
10	250	10.6	220	4.8	110	3.5		3.2
11	260	10.5	210		110	3.6		3.1
12	270	10.6	210	5.1	110	3.8		2.9
13	280	10.7	210	5.2	110	3.7	4.0	2.9
14	275	10.8	220	(5.0)	110	3.6		2.9
15	270	10.7	230	(5.0)	100	3.4		2.9
16	250	10.6	230	4.9	100	3.0		2.9
17	240	10.5			100	2.2	2.6	3.0
18	220	8.5					2.4	3.1
19	210	6.1					2.1	3.1
20	230	5.0					1.6	3.2
21	240	3.8					1.6	3.2
22	(250)	3.0						3.0
23	(250)	2.9						2.8

Time: 30.0°E.
Sweep: 1.0 Mc to 15.0 Mc in 7 seconds.

Table 29

Watheroo, W. Australia (30.3°S, 115.9°E) July 1948

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	268	4.1					3.1	2.8
01	265	4.1					3.1	2.8
02	260	4.2					3.1	2.8
03	258	4.0					3.1	2.8
04	255	4.0					3.1	2.8
05	248	3.8					3.1	2.8
06	240	3.5					3.2	2.9
07	240	5.5				1.8	3.1	3.2
08	240	8.2				2.5	3.2	3.3
09	242	9.5				3.0	3.2	3.2
10	255	10.3	230	4.9		3.2	3.6	3.2
11	250	10.4	235	4.9		3.4	3.8	3.0
12	250	10.5	230	4.8		3.6	4.0	3.0
13	270	10.5	232	4.8		3.3	3.8	2.9
14	268	10.5	230	4.8		3.3	4.4	2.9
15	250	10.4	230			3.2	4.0	2.9
16	245	10.0				2.8	3.2	2.9
17	240	9.7				2.0	3.2	3.0
18	220	8.8					3.2	3.1
19	215	6.7					3.2	3.0
20	230	5.6					3.2	3.0
21	242	4.8					3.2	3.0
22	250	4.4					3.2	2.8
23	260	4.2					3.0	2.8

Time: 120.0°E.
Sweep: 16.0 Mc to 0.5 Mc in 15 minutes, automatic operation.

Table 30

Christchurch, New Zealand (43.5°S, 172.7°E) July 1948

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	310	4.6					3.2	2.7
01	300	4.7					3.4	2.7
02	300	4.5					4.3	2.7
03	280	4.3					3.5	2.8
04	270	4.1					2.8	2.9
05	260	3.8					3.3	3.0
06	260	3.2					2.8	3.0
07	260	3.9					2.7	3.0
08	230	7.3				1.7	3.0	3.3
09	230	9.5				2.5	4.1	3.3
10	240	10.3				2.8	4.4	3.2
11	250	11.1	230	4.8		3.1	4.7	3.1
12	250	11.4	230	4.5		3.2	4.8	3.0
13	250	11.4	240	4.6		3.1	4.8	3.0
14	250	10.7	240	4.4		2.8	4.5	3.0
15	240	10.2				2.5	4.4	3.0
16	240	9.8				2.1	4.4	3.0
17	240	8.7				(1.3)	3.4	3.0
18	250	7.6					2.8	2.9
19	250	6.6					2.8	2.9
20	260	5.7					2.9	2.8
21	275	5.2					2.9	2.8
22	290	4.8					3.2	2.8
23	300	4.7					3.1	2.7

Time: 172.5°E.
Sweep: 1.0 Mc to 13.0 Mc.

Table 31*

Fraserburgh, Scotland (57.6°N, 2.1°W) June 1948

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	305	7.3						2.4
01	310	(7.1)						2.4
02	310	6.8						2.3#
03	315	6.7						2.5
04	310	7.0	290	3.2				2.4
05	300	7.0	245	4.0	130	2.4	2.8	2.6
06	300	7.3	235	4.6	110	2.8	4.0	2.6
07	340	7.2	225	4.9	105	3.2	4.4	2.6
08	330	7.5	220	5.1	100	3.4	4.5	2.6
09	345	7.4	220	5.4	100	3.6	4.2	2.6
10	365	7.6	220	5.5	100	3.7	4.5	2.7
11	390	7.2	220	5.6	105	3.8	4.5	2.7#
12	390	(7.5)	220	5.7	100	3.8	4.2	2.6
13	410	7.3	220	5.6	100	3.8	4.3	2.4#
14	395	7.2	215	5.6	105	3.8	4.4	2.5
15	370	7.2	215	5.5	105	3.7	4.4	2.5
16	350	(7.4)	220	5.4	105	3.6	4.2	2.6
17	300	7.7	230	5.2	105	3.3	4.1	2.7
18	260	7.8	245	4.8	110	3.0	4.2	2.7
19	260	7.9			125	2.5	3.6	2.7
20	265	7.8				2.2#	3.1	2.8
21	275	(7.8)						2.6#
22	285	(8.1)						2.6#
23	310	7.8						2.5

Time: Local.
Sweep: 2.2 Mc to 16.0 Mc in 1 minute.
*Average values except for f°F2 and fEs, which are median values.
#One or two observations only.

Table 32

Lindau/Harz, Germany (51.6°N, 10.1°E) June 1948

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	300	8.0					3.4	
01	300	7.6					3.3	
02	300	7.1					3.4	
03	300	6.9					3.3	
04	300	6.9					3.7	
05	290	7.4					4.7	
06	300	8.2	220	4.6	110	2.8	5.2	
07	305	8.4	220	5.0	105	3.1	4.8	
08	320	8.7	220	5.3	105	3.4	4.9	
09	360	8.8	215	5.5	100	3.6	4.9	
10	390	8.5	210	5.8	100	3.7	5.3	
11	400	8.5	215	5.8	100	3.7	5.0	
12	400	8.5	200	5.7	100	3.8	5.8	
13	400	8.0	210	5.9	100	3.7	5.4	
14	410	8.1	215	5.8	100	3.6	4.9	
15	405	7.9	220	5.7	100	3.7	4.8	
16	400	7.7	220	5.4	100	3.5	4.7	
17	390	7.8	230	5.0	105	3.3	5.0	
18	300	8.1	220		105	3.0	4.9	
19	280	8.2			110	2.4	4.8	
20	300	8.2					4.2	
21	290	8.2					3.4	
22	290	8.1					3.0	
23	300	8.0					3.2	

Time: 15.0°E.
Sweep: 1.0 Mc to 16.0 Mc in 12 minutes.

Table 33*

Slough, England (51.5°N, 0.6°W) June 1948

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	291	8.2					2.6	2.5
01	294	7.6					2.6	2.5
02	296	7.3					2.9	2.4
03	309	7.0			158	1.3	2.6	2.4
04	309	7.0	295	3.5	124	1.7	3.8	2.5
05	320	7.6	252	4.3	116	2.4	4.3	2.5
06	334	7.9	239	4.7	113	2.9	4.8	2.6
07	332	8.2	232	5.2	110	3.2	6.6	2.6
08	352	8.3	229	5.5	109	3.5	7.0	2.6
09	360	8.4	227	5.8	109	3.7	6.8	2.6
10	373	8.6	227	5.8	110	3.9	7.2	2.5
11	374	8.5	223	5.8	109	3.9	6.9	2.5
12	389	8.2	219	5.9	108	4.0	8.7	2.5
13	394	8.1	220	5.8	109	3.9	7.0	2.6
14	398	8.0	220	5.8	109	3.9	6.9	2.6
15	380	8.0	232	5.7	110	3.8	5.1	2.6
16	369	8.0	239	5.6	110	3.6	5.0	2.6
17	345	8.1	236	5.4	110	3.3	4.9	2.6
18	289	8.4	245	4.7	119	2.9		2.7
19	270	8.5	245	4.0	118	2.3	4.3	2.7
20	268	8.6			140	1.8	3.7	2.7
21	270	8.4					3.1	2.6
22	281	8.5					3.5	2.5
23	285	8.2					2.6	2.5

Time: Local.
Sweep: 0.5 Mc to 16.5 Mc in 5 minutes.
*Average values except for f°F2 and fEs, which a. median values.

Table 34

Lanchow, China (36.1°N, 103.8°E) June 1948

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	400	9.8					4.4	2.2
01	400	9.4					4.0	2.2
02	400	8.7					4.0	2.2
03	400	8.1					4.0	2.2
04	400	7.8					3.4	2.2
05	400	8.0					3.6	2.2
06	350	9.0					4.2	2.3
07	360	10.0	320		150	3.4	4.7	2.3
08	400	11.6	310				5.8	2.2
09	440	11.0	320	6.2			6.4	2.2
10	480	11.5	320	6.6			6.3	2.2
11	495	11.5	320	6.7			6.9	2.2
12	520	11.8	330	6.4			6.2	2.1
13	500	12.1	320	6.4			6.3	2.1
14	480	12.0	320	6.5			6.0	2.2
15	480	11.7	290	6.4			5.3	2.2
16	480	11.6	280	5.8	140	3.8	5.0	2.2
17	440	11.5	310	5.4	150	3.6	5.2	2.2
18	400	11.0	320		150	3.0	5.7	2.3
19	360	10.5					4.9	2.2
20	400	10.0					4.4	2.2
21	(400)	(11.0)					4.2	(2.2)
22	400	10.0					4.4	2.2
23	400	9.6					4.6	2.1

Time: 105.0°E.
Sweep: 2.4 Mc to 16.0 Mc in 15 minutes, manual operation.

Table 35

Nanking, China (32.1°N, 119.0°E) June 1948

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00								
01								
02								
03								
04	300	8.0					3.7	2.6
05	280	7.9					2.9	2.6
06	260	8.4			140	2.9	3.7	2.8
07	300	9.1	230				5.5	2.7
08	320	9.4	260				6.4	2.6
09	360	9.8	240				8.6	2.5
10	360	10.2	240	6.2			8.8	2.4
11	400	10.4	260	6.3			7.5	2.5
12	400	10.8	240	6.2			7.0	2.5
13	420	11.2	255	6.0			6.2	2.5
14	400	11.2	240	6.0			6.4	2.5
15	400	11.4	240	6.0			6.2	2.5
16	380	11.0	220	5.6			5.6	2.6
17	360	11.0	240	5.6		4.0	5.0	2.6
18	320	10.5					5.8	2.6
19	300	10.0					5.3	2.6
20	300	9.4					5.8	2.5
21	320	9.8					4.4	2.4
22								
23								

Time: 120.0°E.
Sweep: 1.7 Mc to 15.0 Mc in 15 minutes, manual operation.

Table 36

Rarotonga I. (21.3°S, 159.8°W) June 1948

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00								
01								
02								
03								
04								
05								
06								
07								
08	250	11.6			115	2.6		3.1
09	250	13.0			110	3.2		3.1
10	250	13.1			105	3.5	4.2	3.1
11	250	12.1	250	(7.2)	105	3.7	5.0	3.0
12	250	11.8	225	6.8	105	3.8		2.9
13	300	12.1	240	(6.7)	105	3.8	4.7	2.8
14	300	11.9	250	6.0	110	3.6	4.0	2.7
15	250	11.8	250	6.0	110	3.4	4.2	2.7
16	250	11.8	250	5.4	110	3.1	3.6	2.8
17	260	11.6			120	2.5	3.7	2.8
18								
19								
20								
21								
22								
23								

Time: 157.5°W.
Sweep: 2.0 Mc to 16.0 Mc, manual operation.

Table 37

Falkland Is. (51.7°S, 57.8°W) May 1948

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	385	3.8						2.3
01	383	3.9						2.4
02	385	4.0						2.3
03	399	4.1						2.4
04	379	3.9						2.4
05	362	3.8						2.5
06	337	3.3						2.6
07	267	5.8				2.4		2.8
08	237	9.3			170#	2.6		3.1
09	235	11.2			123	2.8		3.2
10	236	11.8			123	3.0		3.2
11	231	12.9			117#	3.3		3.1
12	238	12.3				3.3#		3.1
13	240	11.3			140#	3.1#		3.1
14	239	10.6			118#	2.8#		3.1
15	241	10.4			120#	2.5		3.2
16	235	8.9						3.2
17	248	7.0						3.0
18	247	5.8						3.1
19	264	4.7						3.0
20	302	3.8						2.7
21	335	3.8						2.6
22	364	4.0						2.4
23	381	3.9						2.3

Time: Local.
Sweep: 2.2 Mc to 16.0 Mc in 1 minute.
*Average values except for f°F2, which are median values.
#One or two observations only.

Table 38

Bagneux, France (48.8°N, 2.3°E) December 1947

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00								
01								
02								
03								
04								
05								
06								
07	240							3.1
08	240		210					3.1
09	230		220					3.2
10	250		220					
11	230		210					
12	260		210					
13	250		210					
14	245		220					
15	250		210					
16	240		210					3.2
17	230							
18	(250)							
19	(260)							3.0
20								
21								
22								
23								

Time: 0.0°.
Sweep: 4.0 Mc to 11.2 Mc in 12 minutes.

Form adopted June 1946

TABLE 39

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D.C.

IONOSPHERIC DATA

h'F2 (Characteristic), km (Unit), September (Month), 1948

Observed at Washington, D.C.

Lat 39.0° N, Long 77.5° W

75° W Mean Time

National Bureau Of Standards (Institution)

Scaled by: E.J.W. J.J.S., J.M.C.

Calculated by: K.L.B. A.G.J. J.J.S.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	270	280	280	250	250K	300K	(250)CK	400K	370K	600K	GK	600K	GK	550HK	GK	480K	610K	350K	250K	250K	240K	230K	270K	330K
2	340K	350K	300K	270K	300K	320K	250K	230K	270K	270K	380HK	550K	380K	380K	380K	340K	CK	CK	CK	CK	CK	CK	CK	CK
3	CK	CK	CK	280K	280K	(320)F	260	220	290	260	320	340	330	300	320	310	290	280	260	230	240	230	260	290
4	300	300	300	280	300	300	230	230	210	300	270	310	300	310	300	280	280	220	240	220	210	230	[240]A	250
5	250	250	260	[270]A	280	260	230	230	240	250	250	320	300	300	300	290	260	250	240	220	210	220	(250)A	250
6	250	250	250	260	250	240	240	240	240	240	280	290	280	300	280	[260]C	220	220	240	210	230	240	(250)A	250
7	240	280	290	260	260	220	220	220	210	260	270	250	280	(300)C	280	290	260	230	230	210	220	220	250	270
8	280	270	260	(300)C	270	260	240	(250)C	300	290	270	310	290	300	290	280	280	260	240	230	240	240	260	250
9	240	250	270	250	260	260	250	230	280	280	290	300	330	340	300	290	280	270	250	230	(230)C	250	250	260
10	260	280	270	270	250	250	240	230	240	270	270	300	270	340	290	280	280	250	250	220	220	240	250	250
11	250	280	290	280	270	260	260	240	290	280	310	330	340	320	310	320	270	270	250	230	240	240	260	300
12	310	280	280	250	240	250	240	230	220	260	280	320	320	300	300	310	230	240	240	230	240	230	260	260
13	270	280	280	300	300	300	260	230	250	250	270	290	320	320	320	300	270	230	240	230	230	250	250	260
14	270	330	310	270	250	250	250	230	260	270	270	280	310	320	300	230	230	240	240	220	230	230	270	280
15	280	290	260	250	250	260	270	240	250	270	300	330	350	330	330	340	330	250	270	240	230	230	250	240
16	300	280	300	270	300	300K	280K	280K	330K	430K	300K	[330]BK	400K	350K	360K	300K	280	240	250	240	250	250	260	260
17	260	260	260	270	300	[290]A	280	240	230	270	290	220	280	320	350	270	230	240	240	230	230	250	250	260
18	[260]C	270	270	270	260	250	240	230	230	270	230	280	330	340	320	320	240	240	250	230	230	260	250	250
19	260	260	260	270	260	260	260	240	230	220	260	290	320	300	300	300	250	240	230	220	240	240	250	250
20	270	270	260	250	250	250	240	230	220	230	230	330	300	230	290	270	240	240	230	230	230	240	250	250
21	250	250	270	260	250	260	240	230	230	230	250	260	270	290	290	220	230	240	240	230	230	250	250	270
22	250	250	240	250	250	250	240	240	240	220	270	310	300	(300)C	(220)B	280	240	240	240	240	250	230	260	270
23	270	250	250	260	270	270	240	230	220	260	270	(240)B	250	260	300	290	240	230	230	230	240	260	270	270
24	290	270	250	250	280	300	290	230	250	290	300	300	310	320	360	300	250	240	250	240	250	250	260	250
25	250	250	260	300	310	280	260	220	240	210	280	230	280	220	270	270	230	230	230	240	230	250	280	260
26	270	280	280	250	250	300F	260	230	230	220	250	260	280	260	260	260	240	240	220	200	230F	250	260	250
27	250	250	280	A	A	A	250	230	220	240	240	260	240	250	280	240	230	230	230	210	230	260	260	250
28	250	250	250	250	250	250	250	230	230	230	230	260	280	280	280	260	230	240	230	210	230	250	250	280
29	300	270	280	280	280	280K	300FK	250K	240K	310K	300K	310K	300K	290K	290	270	230	240	250	250	250	260	250	250
30	250	250	250	250	300	[280]A	250	230	230	230	240	270	280	280	270	250	230	230	230	230	220	250	250	270
31																								
Median	260	270	270	270	260	260	250	230	240	260	270	300	300	300	300	290	240	240	240	230	230	240	250	260
Count	29	29	29	29	29	29	30	30	30	30	30	30	30	30	30	30	29	29	29	29	29	29	29	29

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

TABLE 40

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D.C.

Form adopted June 1946

IONOSPHERIC DATA

f°F2 (Characteristic), Mc (Unit), September (Month), 1948

National Bureau Of Standards (Institution)

Observed at Washington, D.C.

Lat. 39.0°N, Long 77.5°W

75° W Mean Time

Scaled by: E. J. W. J.J.S., J.M.C.

Calculated by: K.L.B. A.G.J. J.J.S.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	(6.1)J	5.4	5.2	5.0	4.2VK	3.1FK	4.1K	4.8FK	5.5K	4.8K	<4.5GK	5.2K	<4.8GK	5.3K	<(4.9)GK	5.4K	5.2FK	5.9K	5.8K	5.7FK	5.9FK	4.5FK	3.3FK	3.0K
2	K2.9FV	K(3.1)JF	K(3.0)FJ	(2.5)FK	(2.9)FK	FK	5.0K	5.7K	6.3KK	K(6.9)JC	(5.6)CK	5.9K	6.7K	(6.5)JK	(6.6)JK	6.5K	CK	CK	CK	CK	CK	CK	CK	CK
3	CK	CK	CK	2.9FK	2.8FK	(2.4)F	4.3	(5.9)P	7.3	8.2	7.7	8.1	8.5	8.5	7.5	7.7	7.5	7.5	7.5	7.9	7.2	(6.3)J	(5.0)J	4.4
4	4.2	4.2	4.1F	3.9	3.2F	[4.0]NF	(4.8)J	(6.7)J	7.8	7.8	8.5	8.7	8.7	8.8	8.7	8.5	8.6	8.7	8.6	8.2	7.2	(6.5)J	5.6F	5.3
5	5.4	5.0	4.8	4.6F	4.1F	3.8F	5.4	7.4	8.5	9.4	9.3	8.5	8.7	8.8	9.4	9.7	9.5	8.9	8.7	8.1	7.4	(6.4)J	(6.0)J	(5.9)CF
6	5.5F	5.3F	4.9F	4.9	4.7F	4.7	5.6	6.8	7.4	7.9	8.4	9.0	9.2	9.5	9.6	[9.2]C	8.7	8.5	9.2	8.5	7.8	7.4	6.3	(6.1)J
7	(5.4)S	5.1	5.1	5.1	5.3	4.9	5.7	(6.8)S	8.2	(9.3)S	9.6	8.9	8.9	8.4	(8.7)C	8.6	(8.7)C	(8.4)C	(9.2)C	8.6	(7.7)C	(6.5)JC	(5.7)C	(5.7)C
8	5.7	(5.1)C	(4.9)C	4.5	3.9	3.8	4.5	5.7	6.3	6.7	7.2	7.4	8.1	8.2	8.0	8.4	8.4	8.5	8.0	7.6	7.0	(6.4)J	6.3	(6.1)J
9	5.5	4.9	4.6	4.3	4.1	3.9	5.0	5.8	6.5	(6.8)J	7.3	7.5	7.7	7.8	8.2	8.0	7.7	7.8	7.6	7.3	(6.5)C	(5.9)J	5.7	5.2
10	5.0	4.7	4.5	4.3	4.1	3.9	5.4	7.2	7.8	8.6	8.5	9.2	9.0	9.4	9.8	9.5	9.0	9.2	9.3	9.0	7.5	6.9	6.1	(5.4)JF
11	5.7	5.1F	4.9	4.6F	4.3	4.3	5.0	5.7	7.1	7.6	7.5	7.6	8.3	8.8	8.8	8.7	8.6	8.4	8.7	7.9	7.1	(6.0)J	5.1	4.9
12	4.9	5.1	5.3	4.9	4.6	3.7	5.3	7.3	8.0	8.6	9.2	9.5P	10.2	10.3	9.6	9.3	9.3	9.3	(9.0)P	8.6	8.3	6.7	5.9	(5.7)S
13	5.3	5.0	4.7	4.4	4.2	4.2	5.5	7.3	8.1	8.5	8.4	8.8	8.7	8.9	9.3	9.6	9.5	9.3	8.9	8.7	7.5	6.8	(6.3)J	(6.1)J
14	5.6	5.1	5.1	5.2	5.1	4.7	5.5	7.2	8.6	9.0	9.6	9.6	9.5	9.7	9.7	9.6	9.5	9.5	(9.3)P	8.8	7.4	6.3	(6.0)JC	5.5
15	(5.5)J	5.4	5.5	5.2	4.8	4.3	5.5	7.5	8.1	8.3	8.5	8.7	8.7	9.2	8.9	8.7	8.8	8.7	8.9	(9.3)CF	9.0	8.4	8.3	7.3
16	7.2	(6.9)J	(6.5)J	6.1	5.6	5.3K	5.5K	5.9K	(6.3)JK	6.3K	K(6.9)JC	[7.4]BK	7.9K	8.3K	8.5K	8.4K	8.5	7.9	7.4	(6.9)J	(6.9)J	(6.1)JF	(6.1)J	5.7
17	5.3	4.9	4.9	4.5	4.1	(3.7)F	4.9	(6.5)J	8.1	9.2	9.6	9.8	9.9	(9.8)C	9.5	9.6	9.3	(9.0)P	8.9	8.1	7.3	(7.0)JC	6.0	5.9
18	[6.0]C	6.1F	5.7	5.3	5.2	4.7F	5.9	7.9	9.3	9.8	10.4	10.6	11.0	10.6	10.6	10.2	(10.4)P	(10.0)P	(10.0)P	9.3	7.8	7.9	7.7	(6.7)J
19	6.7	6.3	(6.2)J	5.9	5.7	5.0	5.7	7.8	8.9	10.0	10.6	11.3	11.0	10.7	10.4	10.5	10.2	10.2	9.7	8.8	8.0	7.5	(6.9)J	(6.6)J
20	6.4	(6.1)P	5.8	5.5	5.1	5.2	6.3	8.0	9.4	9.9	10.5	10.8	(10.7)C	10.8	10.4	10.9	(9.8)CP	(10.5)C	(9.1)P	(9.3)P	8.6	8.0	(7.8)J	7.5
21	7.2	(6.5)J	(6.4)J	5.7	5.6	5.5	(6.4)J	8.9	(9.9)P	10.3	11.2	11.6	11.5	11.6	11.5	11.6	11.0	(11.0)CP	[10.2]SC	(9.3)P	8.6	(8.0)J	(7.3)C	7.7
22	7.5	7.3	6.3	6.0	(5.9)J	5.5	6.2	8.4	(9.6)P	(10.5)C	10.7	11.3	11.5	(11.5)C	(11.3)P	11.3	10.8	10.6	(10.0)P	(9.3)P	8.3	7.8	7.5	7.3
23	7.3	6.7	(6.5)J	5.7	5.5	5.3	5.8	7.6	(9.9)JP	10.1	11.5	11.0	(10.6)C	11.0	11.3	11.2	(9.7)CP	10.7	10.2	8.5	7.7	(6.9)J	(7.0)J	(6.7)J
24	6.8	6.9	(6.8)J	(5.5)J	4.7	(4.1)JS	4.7	6.7	7.7	8.3	8.7	9.0	9.0	(9.6)P	9.3	9.8	9.3	8.7	8.8	(7.8)P	7.5	(6.7)J	(6.7)J	(6.4)J
25	(6.3)J	5.7	4.7	(4.5)J	4.5	(4.1)J	(6.0)J	8.6	9.6	9.7	9.8	(11.3)P	11.8	11.5	10.8	10.2	9.8	(9.8)C	(9.8)CP	(9.3)SC	7.7	(6.9)J	(6.3)J	(5.8)J
26	5.5F	5.1	5.3	5.0	4.5	3.8F	4.7F	8.2	10.0	10.3	11.5	11.0	11.4	11.6	11.3	11.3	11.4	(10.6)SC	(9.8)C	(8.9)JC	7.1F	(6.3)JF	C(6.3)FJ	5.7F
27	5.4F	5.2F	4.7F	(4.8)J	[4.0]A	(3.3)A	(4.9)JF	8.0	9.4	10.0	10.6	10.8	10.7	11.0	11.5	11.6	(10.7)PC	(10.3)PC	(9.8)CP	(8.6)FC	7.2	(6.4)JC	(6.5)JC	(6.3)JC
28	(6.1)JC	(5.7)JC	5.3	5.1	4.4	4.3	5.2	7.5	9.1	9.8	(9.9)P	(9.8)CP	10.8	10.8	10.7	11.0	(10.6)CP	(10.1)CF	F(9.6)SC	(8.4)CP	7.3	7.0	(6.2)J	(6.2)J
29	(5.9)J	(5.8)JF	(5.2)ZF	5.1F	4.6F	3.9FK	4.0FK	6.0FK	6.1K	7.3K	7.5K	7.9K	8.1K	8.7K	9.2	8.8	8.8	8.4	8.0	7.1	(6.6)J	(6.3)J	(6.0)J	(5.7)F
30	5.4	5.1	4.7	4.1	3.9	(3.9)A	(4.9)J	7.6	8.8	9.7	10.8	11.0	(10.0)P	(11.1)SC	11.3	P(11.0)SC	(10.3)CP	(9.7)CF	(9.3)CP	8.9	7.5	(6.7)JF	(6.1)JF	(6.1)JC
31																								
Median	5.6	5.2	5.1	5.0	4.5	4.1	5.4	7.2	8.1	8.8	9.2	9.1	[illegible]	9.6	9.6	9.6	9.3	9.2	9.1	8.6	7.5	(6.7)	(6.2)	5.9
Count	29	29	29	30	30	29	30	30	30	30	30	30	30	30	30	30	29	29	29	29	29	29	29	29

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

Form adopted June 1946

TABLE 41

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D.C.

IONOSPHERIC DATA

f°F2 (Characteristic), Mc (Unit), September (Month), 1948

Observed at Washington, D.C.

Lat 39.0° N, Long 77.5° W

75° W Mean Time

National Bureau Of Standards (Institution)

Scaled by: E.J.W. J.J.S. J.M.C.

Calculated by: K.L.B. A.G.J. J.J.S.

Day	0030	0130	0230	0330	0430	0530	0630	0730	0830	0930	1030	1130	1230	1330	1430	1530	1630	1730	1830	1930	2030	2130	2230	2330
1	(5.5)JS	(5.3)S	5.2	4.6	3.5FK	3.5K	4.6K	5.2K	(5.0)HK	G K	G K	B K	G K	5.3K	(5.2)CK	4.9K	5.6FK	5.8K	5.7FK	(5.8)FK	5.5FK	3.8K	3.2FK	K(2.8)FN
2	K(3.0)FJ	K(3.1)FV	K(3.0)JF	(2.4)FK	2.6FK	4.5FK	5.3K	(6.6)JK	7.1K	(6.0)CK	[6.2]CK	6.3K	6.7K	(6.5)JK	6.8K	C K	C K	C K	C K	C K	C K	C K	C K	C K
3	C K	C K	C K	(2.9)FK	2.3FK	3.1F	5.2	(6.8)J	8.1	7.8	8.1	8.1	8.7	8.1	7.5	7.5	7.5	7.5	7.7	7.4	6.8	(5.7)P	4.7	4.5
4	4.3	4.1	4.0	3.7F	2.3F	3.7F	(5.7)J	7.3	7.6	8.5	8.1	8.5	8.6	8.9	8.6	8.7	8.6	8.5	8.5	(7.9)P	6.9	(5.9)JF	5.7	5.4F
5	5.1	4.9	4.7	4.5F	3.9F	4.1F	6.6	8.4	8.7	9.6	9.3	8.7	8.7	9.3	9.6	9.6	9.2	8.9	8.3	7.7	7.0	(6.1)J	(6.0)J	5.7F
6	5.4F	5.3F	5.0F	4.9	4.6F	4.7F	(6.1)J	(6.8)J	7.7	8.0	8.6	9.0	(9.5)C	9.6	[9.4]C	9.3	8.7	8.7	8.9	8.3	7.6	(6.6)J	(6.0)J	(6.0)SP
7	5.3	4.9	4.9	5.0	5.2	5.0	6.5	(8.1)S	8.6	S	C	8.6	8.8	(8.7)C	(8.7)C	8.5	8.9	(8.9)C	(9.2)C	(7.9)C	7.3	(6.1)JC	(5.7)C	5.5
8	5.4	5.2	(4.7)JC	[4.2]C	3.9	3.9	(4.9)C	[5.7]C	7.3	7.2	7.2	7.8	8.0	8.1	8.3	8.4	8.6	8.2	7.8	7.3	6.8	(6.1)J	(6.1)J	(5.7)J
9	5.2	4.7	4.6	4.1	3.9	4.1	5.7	(6.1)J	(6.4)J	7.3	7.3	7.3	7.8	8.2	7.9	8.1	7.8	7.6	7.5	7.0	[6.2]C	[5.7]C	[5.3]	5.1
10	4.7	(4.4)JS	4.3	4.3	3.8	4.2	6.4	7.6	8.6	(7.9)J	8.7	(9.4)P	8.7	(9.5)CP	9.9	9.3	(9.2)P	(9.3)P	(9.2)P	7.7	7.3	6.5	(6.0)J	5.8
11	5.3F	5.0	4.8	4.6	4.3	4.5	5.7	(6.5)S	7.6	7.5	7.8	7.8	8.5	9.0	8.7	8.8	8.2	8.6	8.3	7.4	(6.4)J	5.5	5.1	4.9
12	5.2	5.3	5.0F	4.6	4.1	3.9	6.2	7.7	8.4	9.0	9.5	9.6	10.5	10.0	9.3	9.4	9.2	9.3	8.9	8.5	7.5	(6.1)J	5.7	5.3
13	5.3	4.9	4.7	4.3	4.2	4.4	6.3	7.9	8.7	8.8	8.8	8.8	8.7	8.8	9.4	9.4	9.5	9.0	9.0	8.2	7.0	6.7	5.9	5.7
14	5.1	5.1	5.3	5.2	4.9	4.6	6.5	8.0	8.7	9.7	(9.7)P	9.7	9.7	9.7	9.8	9.5	9.5	9.6	(9.3)P	7.9	7.0	(6.0)JC	5.7	5.8
15	5.5	5.5	5.3	4.9	4.7	4.7	6.9	7.6	8.2	8.4	8.8	8.6	9.3	8.9	8.7	8.7	8.7	C	[9.4]C	(9.3)P	(8.4)J	(7.9)J	7.9	7.3
16	7.3	(6.7)J	(6.3)C	5.6	[5.4]C	(5.3)CK	5.7K	5.7K	5.9K	(6.6)JK	7.0K	7.9K	8.3K	8.5K	8.6K	8.1K	(8.2)C	7.5	7.5	(7.1)J	6.7	(6.5)J	5.7	5.4
17	5.2	4.8	4.7	(4.1)J	3.9	[4.8]A	5.7	7.5	8.7	9.4	10.0	10.0	9.7	9.6	9.7	9.4	9.2	9.1	9.2	8.0	7.3	(6.5)JC	(6.1)C	(6.4)JC
18	5.7	5.7	5.3	5.3	4.9F	4.9	6.7	9.2	9.3	9.7	10.4	(10.9)P	10.7	10.6	10.5	10.0	(9.8)P	(9.8)P	(9.3)P	8.6	7.9	(7.9)J	7.3	6.8
19	(6.7)J	6.5	(5.9)J	5.7	5.3	4.5	6.8	8.3	9.6	10.5	11.0	10.8	10.8	10.5	10.4	10.5	(9.8)P	(10.0)P	(9.3)P	7.9	7.9	7.1	(6.9)J	6.4
20	(6.4)J	(6.0)J	5.7	5.4	5.1	5.3	7.1	8.7	9.8	10.5	10.7	(10.7)C	10.7	(10.7)C	(10.6)C	[10.7]C	(9.8)P	(9.4)P	(9.3)P	8.9	8.3	7.9	7.8	7.4
21	6.9	6.4	6.1	5.6	5.5	5.6	7.8	9.5	(10.2)CP	10.7	11.6	11.6	11.5	11.1	11.4	(11.0)C	11.1	10.8	[9.7]SC	8.7	8.6	7.9	7.8	(7.9)J
22	(7.3)C	7.1	(6.2)J	(6.1)J	5.7	5.6	7.3	9.0	10.0	(10.6)C	11.0	11.6	(11.3)C	11.5	11.4	11.0	(11.0)S	(9.8)SP	(9.3)P	8.4	(8.5)P	7.8	7.4	7.3
23	7.3	6.5	(6.1)J	5.7	5.3	5.3	6.3	(8.9)P	(10.1)J	11.5	11.4	11.4	10.7	11.3	(11.0)C	11.1	(10.0)CP	10.2	[8.9]S	7.9	(7.1)J	7.0	(7.0)J	(6.4)J
24	(6.7)J	6.8	(6.1)J	4.9	(4.5)J	4.2	5.5	7.0	8.3	8.3	8.8	8.8	9.2	(9.5)P	9.6	9.6	8.8	8.8	8.3	7.5	7.0	(6.6)SC	(6.6)JC	[6.4]JC
25	(5.9)J	4.9	4.5	4.3	4.3	(4.7)J	7.3	7.9	9.6	[10.0]C	10.5	(11.5)CP	11.6	(11.2)C	10.8	9.8	(9.8)C	(9.8)C	(8.7)JC	8.9	7.1	(6.0)P	(6.2)J	5.6
26	5.3	5.2	5.1	4.9	(4.1)JF	3.2F	7.0	9.0	10.3	(11.0)JP	(11.5)C	[11.0]C	11.5	(11.5)SP	11.0	11.2	(10.5)SC	[10.0]SC P	(9.5)SC	(7.8)F	(6.7)JF	[6.4]FC C	(6.0)JF	5.6F
27	5.4F	5.0F	4.6F	4.2	3.8	3.4	(6.5)J	(8.4)FS	10.0	(10.5)JC	(10.2)J	10.7	(10.7)C	(11.0)PC	(11.5)PC	11.6	(10.7)PC	(9.8)PC	[8.8]C	(7.8)PC	[7.1]C	(6.4)JC	[6.4]C	6.3
28	[6.0]C	(5.7)JC	5.2	4.7	4.3	4.1	[6.4]C	8.5	9.1	(9.8)CP	[10.2]C	10.6	10.8	(10.8)P	10.9	10.8	[10.2]SC P	(9.7)SC P	(9.0)SC	7.6	7.0	(6.7)J	5.9	(5.1)F
29	5.7F	5.3F	(5.1)F	4.9F	4.1F	3.6FK	(5.0)FK S	(6.5)JF	6.6FK	7.4K	7.6K	8.1K	8.5K	8.9K	8.8	8.8	8.5	7.9	7.6	(6.8)J	(6.3)J	(6.1)J	(5.9)F	5.7F
30	5.3	4.9	(4.5)J	(3.9)C	3.8	4.0	(6.2)J	8.9	9.4	(10.2)P	(10.9)C	10.7	(11.2)C	(11.0)C	11.0	(10.7)JS	(10.3)CP	[7.6]NC	(8.9)SP	8.4	7.3	(6.8)JF	5.6	(6.1)JC
31																								
Median	5.4	5.2	5.0	4.6	4.2	4.4	6.3	7.8	8.6	9.0	9.3	9.4	9.4	9.6	9.6	9.4	9.2	9.0	(8.9)	7.9	7.1	(6.5)	6.0	5.7
Count	29	29	29	30	30	30	30	30	30	29	29	29	30	30	30	29	29	28	29	29	29	29	29	29

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

U. S. GOVERNMENT PRINTING OFFICE 1946 O - 703519

TABLE 42

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D.C.

IONOSPHERIC DATA

Form adopted June 1946

h'F1 (Characteristic), km (Unit), September (Month), 1948

Observed at Washington, D. C.

Lat 39.0°N, Long 77.5°W

75° W Mean Time

National Bureau Of Standards (Institution)

Scaled by: E.J.W., J.J.S., J.M.C.

Calculated by: K.L.B., A.G.J., J.J.S.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							Q^{K}	(250)$^{A}_{K}$	200^{K}	^{K}(210)$^{A}_{H}$	200^{K}	(200)$^{C}_{K}$	(200)$^{C}_{K}$	200$^{H}_{K}$	(210)$^{C}_{K}$	200^{K}	(200)$^{A}_{K}$	240^{K}						
2								Q^{K}	220^{K}	C^{K}	200$^{H}_{K}$	200^{K}	180^{K}	230^{K}	210^{K}	210^{K}	C^{K}	C^{K}						
3								Q	200	210	200	200	200	220	210	210	230	230						
4								Q	Q	200	210	190	200	190	210	210	220	Q						
5								Q	210	210	200	200	180	200	210	210	210	210						
6								200	220	200	200	200	200	200	200	C	Q	Q						
7								Q	Q	200	200	200	190	200	(200)^{C}	200	(200)^{C}	Q						
8								Q	200	200	200	200	180	200	210	220	C	230						
9								Q	220^{H}	230	200	200	190	200	230	220	220	230						
10								Q	220	220	200	220	210	210	240	220	220	Q						
11								Q	220	(220)^{S}	230	200	(200)^{C}	210	210	230	230	230						
12								Q	Q	210	200	230	210	230	220	200	Q	Q						
13								Q	220	210	200	200	200	200	230	230	230	Q						
14								Q	(210)^{C}	200	220	220	200	210	220	Q	Q	Q						
15								Q	230	230	220	200	210	210	210	220	230	Q						
16								240^{K}	230^{K}	220^{K}	220^{K}	B^{K}	200^{K}	(210)$^{B}_{K}$	230^{K}	230^{K}	220	Q						
17								Q	Q	220	220	Q	200	220	220	220	Q	Q						
18								Q	Q	210	Q	220	200	220	240	250	Q	Q						
19								Q	Q	Q	210	210	240	210	220	230	220	Q						
20								Q	Q	Q	Q	230	200	Q	220	220	Q	Q						
21								Q	Q	Q	200	200	C	210	220	Q	Q	Q						
22								Q	Q	Q	220	200	B	(200)^{C}	Q	210	Q	Q						
23								Q	Q	210	230	Q	210	220	(230)^{B}	230	230	Q						
24								Q	230	220	220	220	210	220	220	230	220	Q						
25								Q	Q	Q	210	Q	220	Q	230	220	Q	Q						
26								Q	Q	Q	(210)^{B}	220	200	210	220	B	Q	Q						
27								Q	Q	220	220	200	C	220	220	230	Q	Q						
28								Q	Q	220	Q	200	200	210	210	210	Q	Q						
29								Q^{K}	Q^{K}	220^{K}	200^{K}	200^{K}	200^{K}	210^{K}	210	220	Q	Q						
30								Q	Q	Q	200	210	220	(200)^{C}	220	200	Q	Q						
31																								
Median									220	210	200	200	200	210	220	220	220	230						
Count									14	22	27	26	27	28	29	26	14	6						

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

U. S. GOVERNMENT PRINTING OFFICE 1948 O - 773119

Form adopted June 1946

TABLE 43

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D.C.

IONOSPHERIC DATA

f°F1 (Characteristic), Mc (Unit), September (Month), 1948

Observed at Washington, D.C.

Lat 39.0° N, Long 77.5° W

75° W Mean Time

National Bureau Of Standards (Institution)

Scaled by: E.J.W. J.J.S., J.M.C.

Calculated by: K.L.B. A.G.J. J.J.S.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							Q K	4.1 K	4.4 K	4.5 K	4.5 K	4.7 K	48 K	49 HK	(49) CK	4.7 FK	(4.3) CK	4.4 K						
2								Q K	L K	L K	5.2 HK	52 HK	4.7 HK	52 K	50 K	5.0 K	C K	C K						
3								Q	L	L	51	5.0	[5.0] C	4.9	49	4.7	L	L						
4								Q	Q	L	L	5.3	L	L	L	L	L	Q						
5								Q	L	L	4.9	L	L	L	49	49	L	L						
6								L	L	L	L	L	L	L	L	C	Q	Q						
7								Q	Q	(4.9) S	S C	L	L	L C	L	L	L	Q						
8								Q	L	L	4.9	L	L H	5.3 H	5.2	L	L	L						
9								Q	L	L	(5.5) H	4.9	L	L	L	L	L	L						
10								Q	L	L	L	L	L	57	L	L	L	Q						
11								Q	L	L	L	59	L	L	5.2	L	L	L						
12								Q	Q	L	L	L	L	L	L	L	Q	Q						
13								Q	L	L	L	L	L	L	L	L	L	Q						
14								Q	L	L	L	L	L	L	L	Q	Q	Q						
15								Q	L	L	L	L	L	L	L	L	L	Q						
16								L K	L K	5.3 K	L K	B K	L CK	5.7 K	L K	L K	L	Q						
17								Q	Q	L	L	Q	L	L	L	L	Q	Q						
18								Q	Q	L	Q	L	L	L	L	L	Q	Q						
19								Q	Q	Q	L	L	L	L	L	L H	L	Q						
20								Q	Q	Q	Q	L	L	Q	L	L	Q	Q						
21								Q	Q	Q	L C	L	L	L	L	Q	Q	Q						
22								Q	Q	Q	L	L	L B	L C	Q	L	Q	Q						
23								Q	Q	L	L	Q	L	L B	L	L	L	Q						
24								Q	L	L	L	L	5.5	L	L	L	L	Q						
25								Q	Q	Q	5.8	Q	L	Q	L	L	Q	Q						
26								Q	Q	Q	L	L	L	L	L	L	Q	Q						
27								Q	Q	L	L	L	L	L	L	L	Q	Q						
28								Q	Q	L	Q	L	L	L	L	L	Q	Q						
29								Q K	Q K	L K	53 K	L K	L K	L K	L	L	Q	Q						
30								Q	Q	L	L	L	L	L	L	L	Q	Q						
31																								
Median											5.2	5.1		5.2	5.0									
Count											8	6		6	6									

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

U. S. GOVERNMENT PRINTING OFFICE 1946 O - 702319

Form adopted June 1948

TABLE 44

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D. C.

IONOSPHERIC DATA

h'E (Characteristic), km (Unit) September (Month), 1948

Observed at Washington, D. C.

Lat 39.0°N, Long 77.5° W

75°W Mean Time

National Bureau Of Standards (Institution)

Scaled by: E.J.W. J.J.S., J.M.C.

Calculated by: K.L.B. A.G.J. J.J.S.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							110K	100K	100K	100K	100K	110K	110K	100K	CK	100K	110K	100K	100K					
2							130K	100K	100K	100K	100K	100K	100K	100K	100K	100K	CK	CK	CK					
3							110	100	100	100	100	100	100	100	100	100	100	100	110					
4							120	100	100	100	100	100	100	100	100	100	100	100	120					
5								100	100	100	100	100	100	100	100	100	100	100	110					
6								100	100	100	100	100	100	100	100	C	100	100	120					
7							110	100	100	100	100	100	100	100	100	100	100	100	110					
8								100	100	100	100	100	100	100	100	100	100	100	A					
9								110	100	100	100	100	100	100	100	100	100	100	120					
10							130	110	100	100	100	100	100	100	100	100	100	100	110					
11							110	110	100	100	100	100	100	100	100	100	100	100	A					
12							110	110	100	100	100	100	100	100	100	100	100	100	120					
13							120	110	100	100	100	110	100	100	100	100	100	110	110					
14							120	110	100	110	100	100	B	100	110	110	100	110	A					
15							A	100	100	100	100	100	100	100	100	100	110	100	C					
16							110K	100K	100K	110K	110K	BK	100K	100K	110K	110K	100	110	120					
17							100	100	100	100	100	100	100	100	100	110	100	110	110					
18							A	110	120	100	100	100	100	100	110	B	120	110						
19							140	120	100	100	110	100	110	110	110	110	100	100	110					
20								110	100	100	100	110	100	100	100	110	100	110	110					
21							C	100	100	100	100	100	100	100	100	110	100	110						
22							150	110	100	110	110	100	100	C	B	110	100	110						
23								100	100	100	100	100	100	110	110	100	100	100	C					
24							C	110	100	100	110	100	110	100	100	100	100	110						
25								100	100	100	100	100	100	100	100	100	100	110	130					
26								100	100	100	100	100	100	100	100	B	100	120						
27								120	100	100	100	100	100	100	100	100	(130)A	120						
28								110	100	100	100	110	100	100	110	110	100	110						
29								110K	100K	100K	100K	100K	100K	100K	100	100	100	110						
30								100	100	100	100	100	100	100	100	100	100	110						
31																								
Median							115	100	100	100	100	100	100	100	100	100	100	110	110					
Count							14	30	30	30	30	29	29	29	28	27	29	29	15					

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

Form adopted June 1946

TABLE 45

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D. C.

IONOSPHERIC DATA

f°E (Characteristic), Mc (Unit), September (Month), 1948

Observed at Washington, D.C.

Lat 39.0°N, Long 77.5°W

75° W Mean Time

National Bureau Of Standards (Institution)

Scaled by: E.J.W., J.J.S., J.M.C.

Calculated by: K. L. B., A.G.J., J.J.S.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							C K	2.1 K	(2.7) AK	[3.2] AK	3.6 K	3.7 K	(3.9) CK	C K	C	3.5 K	3.3 FK	A K	A K					
2							(1.9) HK	A K	A K	3.3 K	(3.7) CK	3.7 K	3.8 K	(3.7) CK	3.7 K	3.5 K	C K	C K						
3							(1.9) H	2.0	[2.6] A	3.3	3.6	3.9	3.8	(3.7) C	(3.6) C	3.3	3.1	2.5	2.1					
4							1.9	2.6	3.0 H	[3.3] A	(3.6) C	3.7	(3.7) C	[3.7] C	(3.7) C	(3.4) C	3.1	2.7	2.1					
5								2.5	2.7	A	A	(3.6) C	[3.6] C	(3.5) C	[3.4] C	3.2	3.0	2.5	1.9 H					
6								2.1	2.7	3.1	[3.5] C	(3.9) C	3.9	3.9	(3.7) C	C	A	2.6 H	2.1 H					
7							(2.0) S	(2.4) S	(2.7) A	(3.3) C	(3.5) C	(3.7) C	[3.6] C	(3.6) C	[3.4] C	3.2	3.1	2.5	(2.1) C					
8								C	3.0	[3.2] A	(3.5) C	C	C	C	(3.7) C	3.3	3.0	2.6	A					
9								2.6 H	3.1 H	2.9	C	C	(3.7) C	[3.6] C	(3.5) C	[3.3] C	(3.1) CF	(2.6) C	(2.2) C					
10							1.8	2.3	3.1 H	3.6	(3.7) C	3.6	[3.7] C	3.8	(3.6) C	3.5	3.1	2.6	(2.1) C					
11							(1.8) C	2.5 H	3.2	(3.2) S	(3.4) A	3.6	[3.7] C	3.8	3.5	3.5	3.1	2.3	A					
12							(1.9) C	2.6 H	3.0	3.4	(3.6) C	3.7	A	A	3.7	3.5	3.3	2.6	1.7					
13							2.1	2.5 H	3.1	[3.4] A	(3.7) C	(3.8) C	(3.8) C	3.9	(3.9) C	(3.6) C	3.2	2.6	C					
14							1.9	2.5 H	3.1	2.9	3.8	3.8	B	C	3.7	3.6	3.3	2.5	A					
15							A	A	3.1 F	[3.3] C	3.5 F	3.8	3.8	3.7	3.7	3.5	3.1	2.7	(1.7) SC					
16							1.9 K	2.5 K	3.1 K	3.6 K	(3.9) CK	[3.9] BK	(3.9) BK	B K	B K	3.4 K	3.1	(2.5) FA	(1.9) H					
17							(2.3) B	2.6	3.1	3.5	3.7	3.9	3.9	[3.7] A	3.5	3.3	3.2	2.6	(2.1) C					
18							A	2.6	3.3	3.3	3.8	3.9	3.9	3.9	(3.7) B	[3.5] B	3.3	3.1						
19							1.7	2.7 H	3.2	(3.6) H	3.8	3.9	3.9 H	3.9	3.7	3.7	3.3	A	A					
20								2.6	3.1	3.6	3.8	3.9	3.9	4.0	(3.9) C	3.6	3.3	(2.6) C	(1.8) C					
21							1.9	2.5 H	3.1	3.4	(3.8) C	4.0	(3.9) C	4.0	3.9	3.6	(3.2) C	2.5						
22							1.9	2.5	3.4	3.6	(3.9) C	(4.1) C	B	C	B	3.5	3.1	2.3						
23								(2.5) H	3.1	3.5	3.5	B	B	B	B	3.7	3.1	(2.6) C	1.7 H					
24							1.8	(2.4) A	3.0	3.2	3.6	(3.7) B	(4.0) B	3.7	3.4	3.4	2.9	2.5						
25								2.3	2.9	3.4	[3.5] B	3.6	[3.6] B	(3.7) B	3.3	3.1	2.9	2.4	1.7					
26								(2.3) B	2.8 H	3.2	3.3	[3.5] B	3.7	3.5	3.2	[3.2] B	3.1	2.3						
27								2.3	2.9	3.3	(3.4) C	(3.5) C	3.5	3.4	3.2	[3.1] A	3.0	2.2						
28								2.3	2.9	3.3	(3.5) B	3.7	3.5	(3.7) C	(3.3) C	3.3	2.9	2.1						
29								2.3 FK	2.7 K	3.1 K	(3.3) CK	(3.3) SK	[3.4] CK	3.5 K	3.5	3.1	2.5	2.1						
30								2.3	2.9	3.3	(3.5) F	(3.5) SC	[3.4] C	(3.4) C	3.1	3.1	2.7	2.1						
31																								
Median							1.9	2.5	3.0	3.3	(3.6)	3.7	(3.8)	3.7	3.6	3.4	3.1	2.5	2.0					
Count							15	27	29	29	28	27	25	23	26	29	28	27	14					

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

U S GOVERNMENT PRINTING OFFICE : 1946 O - 702519

TABLE 46

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D. C.

IONOSPHERIC DATA

Form adopted June 1946

Es (Characteristic), Mc,km (Unit) September (Month), 1948

National Bureau Of Standards (Institution)

Observed at Washington, D. C.

Lat 39.0°N, Long 77.5°W

75° W Mean Time

Scaled by: E.J.W. J.J.S. J.M.C.

Calculated by: K.L.B. A.G.J. J.J.S.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								3.7 100	4.1 100	4.4 100		3.5 100	3.5 100		C	4.7 100	3.9 90	3.9 90	4.3 90	3.1 80		3.0 100		
2								2.6 110	3.2 100								C	C	C	C	C	C	C	C
3	C	C	C					2.5 100	2.9 100												1.9 90	3.1 100	3.0 100	3.1 100
4	2.6 100	3.0 100	3.0 100						5.7 120	3.1 100												2.7 100	5.9 100	
5				3.2 100	3.6 100	2.3 100	1.9 140			3.4 100	3.1 100				1.9 90								5.4 100	3.0 100
6		3.1 100						5.5 100								C	3.0 100					3.3 100	3.2 100	3.0 100
7								3.1 110	4.0 100	3.4 100								2.8 120				3.5 100		
8										3.1 100							3.1 130		3.1 120					
9										3.1 100										1.9 110	1.9 110			2.3 100
10				3.1 100				2.5 120	3.7 120									4.2 120					1.7 100	
11											5.7 120					5.8 110			3.1 130	3.8 120				
12			3.1 120										4.5 100	3.9 100	3.2 120				2.9 110		1.9 110	3.2 100	2.1 100	1.9 100
13	1.7 100			1.7 100	2.4 120	3.1 120		3.1 120		3.4 110												2.6 100		
14						4.8 110				3.1 110									3.4 100	3.1 100				
15							2.1 110	3.6 110																
16	2.3 130	3.1 120	2.3 120									B					10.0 120	3.1 100					1.9 100	
17				2.3 120	2.1 120	5.3 100								5.8 110										
18	C				2.4 120		2.1 110		2.6 110															
19								3.7 100										2.9 110	3.1 110					
20								3.1 110	3.2 110	4.2 110														
21														9.5 110						1.9 110				
22											5.7 110			C										
23																		3.0 110						
24		2.5 110				2.3 100		3.6 100																
25																			2.1 130					
26																								
27			3.1 100	6.3 100	5.8 100	5.6 100	3.1 100	2.0 100					4.2 110			5.0 100	2.7 110	1.7 110			2.8 100			
28																								
29																								
30						4.9 100																		
31																								
Median	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
Count		29	29	30	30	30	30	30	30	30	30	29	30	29	29	29	29	29	29	29	29	29	29	29

** MEDIAN fEs LESS THAN MEDIAN f°E, OR LESS THAN LOWER LIMIT OF RECORDER.

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

Form adapted June 1946

TABLE 47

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D.C.

IONOSPHERIC DATA

F2-M1500 (Characteristic), ____ (Unit), September (Month), 1948

Observed at Washington, D.C.

Lat 39.0° N, Long 77.5° W

75° W Mean Time

National Bureau Of Standards (Institution)

Scaled by: E.J.W. J.J.S., J.M.C.

Calculated by: K.L.B. A.G.J. J.J.S.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	(1.8)J	1.7	1.8	1.9	2.0 YK	1.8 FK	2.0 K	1.8 FK	2.0 K	1.5 K	G K	1.5 K	G K	1.6 K	G K	1.7 K	1.5 FK	1.9 K	2.1 K	2.1 FK	2.1 FK	2.0 FK	1.6 FK	1.7 K
2	K 1.6 YF	K (1.7)JF	K (1.8)JF	(2.0)FK	(1.7)FK	F K	2.2 K	2.3 K	2.4 K	K (2.3)JC	(2.0)CK	1.6 K	1.9 K	(1.8)JK	(1.9)JK	1.8 K	C K	C K	C K	C K	C K	C K	C K	C K
3	C K	C K	C K	1.7 FK	1.6 FK	(1.8)F	2.1	(2.1)P	2.2	2.2	2.1	1.9	2.0	2.0	1.9	2.0	2.0	2.1	2.0	2.2	2.1	(2.0)J	(2.1)J	1.9
4	1.8	1.8	1.9 F	1.9	1.6 F	N F	(2.3)J	(2.2)J	2.4	2.2	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	(2.1)J	2.0	1.9
5	1.9	1.9	1.9	1.9 F	2.0 F	1.9 F	2.3	2.3	2.4	2.2	2.2	2.1	2.0	2.0	2.0	2.1	2.1	2.2	2.2	2.1	2.0	(2.0)J	(2.0)J	(2.0)CF
6	1.9 F	2.0 F	2.0 F	1.9	1.9 F	2.1	2.4	2.5	2.4	2.3	2.1	2.0	2.0	2.0	2.1	C	2.1	2.0	2.1	2.1	2.1	2.0	2.0	(2.0)J
7	(2.0)S	1.8	1.8	1.9	2.0	2.2	2.4	(2.0)S	2.2	(2.3)S	2.2	2.0	2.0	2.0	(2.1)C	2.1	(2.0)C	(2.2)C	(2.2)C	(2.2)C	(2.1)C	(2.1)CJ	(1.9)C	(1.9)C
8	2.0	(1.9)C	(1.9)C	1.9	1.9	1.9	2.4	2.2	2.2	2.2	2.2	2.0	2.2	2.1	2.1	2.0	2.0	2.0	2.1	2.1	2.0	(1.9)J	1.9	(2.0)J
9	2.0	1.9	1.8	2.0	1.9	2.0	2.2	2.2	2.2	(2.2)J	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.2	2.1	2.0	(2.0)C	(1.9)J	1.9	1.9
10	1.9	1.8	1.8	1.9	2.0	2.0	2.2	2.4	2.4	2.3	2.0	2.0	2.0	1.8	2.0	2.0	(2.2)C	2.0	2.0	2.0	2.0	1.9	2.0	(1.9)JF
11	1.9	1.8 F	1.8	1.8 F	1.8	1.9	2.1	2.1	2.2	2.1	2.1	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.0	(1.9)J	1.8	1.7
12	1.7	1.8	1.8	1.9	1.8	2.0	2.2	2.3	2.2	2.2	2.0	(1.9)P	1.9	1.9	1.9	1.9	1.9	1.9	(2.0)P	2.0	2.0	2.0	1.9	(1.8)S
13	1.8	1.8	1.7	1.7	1.6	1.8	2.0	2.3	2.2	2.2	2.1	2.0	2.0	2.0	1.9	1.9	2.0	2.0	2.0	2.0	2.0	1.9	(1.9)J	(1.8)J
14	1.8	1.6	1.7	1.8	1.9	2.0	2.2	2.2	2.2	2.1	2.1	2.2	2.0	1.9	1.9	1.9	1.9	1.9	(2.1)P	2.0	2.0	2.0	(1.8)JC	1.9
15	(1.9)J	1.8	1.8	1.8	1.9	1.9	2.0	2.2	2.2	2.0	2.1	2.0	1.9	1.7	1.9	1.8	1.8	1.9	1.8	(2.0)CP	1.7	1.8	1.8	1.7
16	1.6	(1.7)J	(1.7)J	1.7	1.7	1.7 K	1.9 K	2.0 K	(2.0)JK	1.9 K	K (2.3)JC	B K	1.9 K	1.8 K	1.8 K	1.9 K	1.9	1.9	1.9	(2.1)J	(1.9)J	(2.1)JF	(1.8)J	1.8
17	1.8	1.8	1.8	1.7	1.7	(1.7)F	1.6	(2.0)J	2.1	2.0	2.0	2.0	1.9	(1.9)C	1.8	1.8	1.9	(2.1)P	2.0	2.2	1.8	C	1.8	1.8
18	C	1.7 F	1.8	1.9	1.9	1.9 F	2.2	2.2	2.1	2.3	1.9	1.9	1.8	1.9	1.9	1.9	(1.8)P	(1.9)P	(2.0)P	1.9	1.8	1.9	1.9	(1.8)J
19	1.8	1.8	(1.8)J	1.8	1.7	1.8	2.0	2.3	2.0	2.0	2.1	2.0	2.0	2.0	1.9	1.9	1.9	2.0	2.2	2.0	1.9	1.9	(1.9)J	(2.1)J
20	1.9	(1.9)P	1.9	1.9	1.8	1.8	2.1	2.2	2.2	2.1	2.1	2.0	(2.0)C	2.0	2.0	1.8	(2.0)CP	(2.0)C	(2.2)P	(2.0)P	1.9	1.9	(1.9)J	2.0
21	1.9	(1.9)J	(1.9)J	1.9	1.8	1.9	(2.1)J	2.2	(2.3)P	2.2	2.0	2.0	1.9	1.9	1.9	1.9	2.0	(2.0)CP	S C	(2.2)P	1.8	(2.1)J	(1.8)C	1.9
22	2.0	2.1	1.9	1.7	(1.9)J	1.9	2.0	2.1	(2.3)P	(2.1)C	2.1	2.0	1.9	(1.9)C	(1.9)P	1.9	2.0	2.0	(2.0)P	(1.9)P	1.8	1.9	1.8	1.7
23	1.8	1.8	(1.8)J	1.8	1.7	1.8	2.0	2.0	(2.2)JP	2.1	2.0	2.2	(2.1)C	2.0	1.9	2.0	(2.2)CP	2.0	2.1	2.1	1.8	(1.8)J	(1.8)J	(2.1)J
24	1.7	1.8	(1.9)J	(1.9)J	1.7	(1.7)JS	1.9	2.0	2.1	2.0	2.0	2.0	1.9	(1.9)P	1.8	1.9	1.9	1.9	1.9	(1.9)P	1.8	(1.8)J	(2.0)J	(1.9)J
25	(1.9)J	1.9	1.9	(1.7)J	1.6	(1.8)J	(2.1)J	2.3	2.3	2.1	2.1	(1.9)P	2.1	2.0	2.0	2.0	2.0	(2.2)C	(2.1)CP	(2.0)SC	1.8	(1.9)J	(1.8)J	(2.0)J
26	1.7 F	1.7	1.7	1.8	1.9	1.8 F	2.1 F	2.2	2.2	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	(2.1)SC	(2.3)C	(2.0)JC	2.0 F	(1.9)JF	F (1.8)JC	1.9 F
27	1.9	1.9 F	1.9 F	(2.1)J	A	(1.8)A	(2.2)JF	2.4	2.3	2.2	2.1	2.1	1.9	2.0	2.0	2.0	(2.2)PC	(2.0)PC	(2.2)PC	(2.1)PC	2.0	(2.0)JC	(1.9)JC	(2.0)JC
28	(2.0)JC	(2.0)JC	2.0	2.0	2.0	2.0	2.1	2.3	2.2	2.2	(2.3)P	(2.2)CP	2.1	2.1	2.1	2.0	(2.1)CP	(2.2)CP	S (2.3)PC	(2.0)CP	1.9	1.9	(1.9)J	(1.8)J
29	(1.8)J	(1.8)JF	(1.8)ZF	1.4 F	1.7 F	1.8 FK	1.9 FK	2.1 FK	2.0 K	2.0 K	1.9 K	1.9 K	1.8 K	2.0 K	1.9	2.0	2.0	2.0	2.0	1.8	(1.8)J	(1.9)J	(1.8)J	(1.9)F
30	1.9	1.9	1.8	1.8	1.8	(1.8)A	(2.2)J	2.3	2.3	2.3	2.1	2.1	(2.0)P	(2.1)SC	2.0	S (2.1)CP	(2.2)CP	(2.3)CP	(2.2)CP	2.0	2.1	(1.9)JF	(1.9)JF	(1.9)JC
31																								
Median	1.9	1.8	1.8	1.9	1.8	1.8	2.1	2.2	2.2	2.2	2.1	2.0	2.0	2.0	1.9	2.0	2.0	2.0	2.1	2.0	2.0	(1.9)	(1.9)	(1.9)
Count	28	29	29	30	29	28	30	30	30	30	30	29	30	30	30	29	29	29	28	29	29	28	29	29

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

TABLE 48

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D.C.

Form adopted June 1946

IONOSPHERIC DATA

F2-M3000 (Characteristic), ____ (Unit), September (Month), 1948

Observed at Washington, D.C.

Lat 39.0° N, Long 77.5° W

75° W Mean Time

National Bureau Of Standards (Institution)

Scaled by: E.J.W. J.J.S. J.M.C.

Calculated by: K.L.B. A.G.J. J.J.S.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	(2.7)J	2.6	2.7	2.8	2.9VK	2.7K	3.0K	2.8FK	3.0K	2.3K	GK	2.3K	GK	2.3K	GK	2.6K	2.3FK	2.3K	3.1K	3.1FK	3.1FK	3.1FK	2.5FK	2.6K
2	K2.4FV	K(2.6)JF	K(2.7)JF	(3.0)FK	(2.6)FK	FK	3.2K	3.3K	3.7K	K(3.5)JC	(3.0)CK	2.4K	2.8K	(2.7)JK	(2.8)JK	2.8K	CK	CK	CK	CK	CK	CK	CK	CK
3	CK	CK	CK	2.5FK	2.5FK	(2.8)F	3.1	(3.1)P	3.3	3.3	3.2	2.8	2.9	2.9	2.9	3.0	3.1	3.2	3.0	3.2	3.1	(3.0)J	(3.1)J	2.8
4	2.7	2.8	2.8	2.8	2.4	NF	(3.4)J	(3.3)J	3.5	3.2	3.2	3.0	2.9	2.9	3.0	2.9	3.0	3.0	3.1	3.2	3.2	(3.1)J	3.0	2.8
5	2.8	2.8	2.9	2.8F	3.0F	2.9F	3.3	3.4	3.5	3.3	3.2	3.1	3.0	3.1	3.0	3.1	3.2	3.2	3.2	3.1	3.1	(3.0)J	(3.0)J	(3.0)CF
6	2.9F	2.9F	2.9F	2.9	2.9F	3.2	3.4	3.5	3.5	3.4	3.1	3.0	3.0	3.0	3.1	C	3.2	3.0	3.1	3.1	3.1	3.1	3.0	(3.0)JC
7	(3.0)S	2.7	2.7	2.8	3.0	3.2	3.5	(3.0)S	3.3	(3.4)S	3.2	3.1	3.1	3.0	(3.1)C	3.2	(3.0)C	(3.3)C	(3.1)C	3.2	(3.2)C	(3.2)CJ	(2.9)C	(2.8)C
8	3.0	(2.8)C	(2.9)C	2.9	2.8	2.8	3.5	3.2	3.2	3.3	3.2	3.0	3.2	3.1	3.1	3.0	3.0	2.9	3.1	3.1	2.9	(2.9)J	2.8	(3.0)J
9	3.0	2.9	2.8	2.7	2.8	2.9	3.2	3.3	3.3	(3.3)J	3.1	3.1	3.0	3.0	3.0	3.1	3.1	3.2	3.2	3.1	(3.0)C	(2.9)J	2.7	2.8
10	2.9	2.7	2.8	2.8	2.9	2.8	3.2	3.4	3.4	3.2	3.1	3.0	3.0	2.8	3.0	3.0	3.2	3.0	3.0	3.0	3.0	2.9	3.0	(2.9)JF
11	2.8	2.7F	2.7	2.7F	2.8	2.8	3.2	3.1	3.3	3.3	3.1	3.0	2.8	2.8	2.8	2.9	2.9	3.0	3.0	3.0	3.0	(2.8)J	2.7	2.5
12	2.6	2.6	2.7	2.9	2.8	2.9	3.2	3.4	3.3	3.2	3.0	(2.9)P	2.9	2.9	2.9	2.9	2.9	3.0	(3.0)P	3.0	3.0	3.0	2.8	(2.7)S
13	2.7	2.8	2.6	2.5	2.6	2.7	3.0	3.4	3.4	3.2	3.1	3.1	2.9	2.8	2.9	2.9	3.0	3.0	3.0	3.0	3.0	2.8	(2.9)J	(2.8)J
14	2.8	2.5	2.6	2.7	2.8	3.0	3.4	3.3	3.2	3.2	3.1	3.2	3.0	2.9	2.9	2.9	2.9	3.0	(3.1)P	3.0	3.0	2.9	(2.8)JC	2.8
15	(2.8)J	2.8	2.8	2.8	2.8	2.9	3.1	3.3	3.2	3.0	3.0	2.9	2.8	2.7	2.8	2.8	2.7	2.8	2.7	(3.2)CP	2.8	2.8	2.8	2.6
16	2.5	(2.6)J	(2.6)J	2.6	2.5	2.7K	2.9K	3.0K	(3.0)JK	2.7K	K(3.4)JC	BK	2.8K	2.9K	2.7K	2.9K	2.8	2.9	2.9	(3.1)J	(2.9)J	(3.4)JF	(2.8)J	2.8
17	2.8	2.8	2.7	2.6	2.5	(2.5)F	2.9	(2.9)J	3.9	3.1	3.0	3.0	2.9	(2.9)	2.8	2.7	2.8	(3.2)P	3.1	3.3	2.7	C	2.8	2.8
18	C	2.6F	2.7	2.8	2.8	2.9F	3.1	3.3	3.1	3.3	2.9	2.8	2.8	2.8	2.8	2.8	(2.8)P	(2.9)P	(2.9)P	2.9	2.7	2.9	2.9	(2.7)J
19	2.6	2.7	(2.7)J	2.8	2.6	2.8	3.0	3.4	3.1	3.0	3.1	3.0	2.9	3.0	2.9	2.8	2.9	2.9	3.2	3.0	2.8	2.9	(2.9)J	(3.2)J
20	2.8	(2.8)P	2.8	2.8	2.7	2.8	3.2	3.4	3.2	3.1	3.0	2.9	(3.0)C	3.0	3.0	2.8	(3.1)CP	(3.0)C	(3.3)P	(3.1)P	2.8	2.9	(2.9)J	3.0
21	2.9	(2.9)J	(2.9)J	2.8	2.7	2.9	(3.1)J	3.4	(3.4)P	3.2	2.9	3.0	2.8	2.8	2.8	2.8	2.9	(3.1)CF	SC	(3.1)P	2.7	(3.1)J	(2.8)C	2.9
22	3.0	3.0	2.8	2.7	(2.9)J	2.9	3.0	3.1	(3.3)P	(3.1)C	3.0	2.9	2.9	(2.8)C	(2.8)P	2.8	2.9	3.0	(3.0)P	(2.8)P	2.8	2.9	2.7	2.5
23	2.7	2.8	(2.7)J	2.9	2.6	2.7	3.1	3.1	(3.2)JP	3.0	3.0	2.9	(3.0)C	2.9	2.8	2.9	(3.2)CP	3.0	3.1	3.0	2.8	(2.8)J	(2.7)J	(2.7)J
24	2.6	2.7	(2.9)J	(2.8)J	2.6	(2.5)JS	2.9	3.0	3.1	3.0	3.0	3.0	2.8	(2.9)P	2.6	2.9	2.8	2.9	2.8	(2.9)P	2.8	(2.7)J	(3.0)J	(2.8)J
25	(2.9)J	2.8	2.8	(2.5)J	2.4	(2.7)J	(3.2)J	3.5	3.5	3.1	3.1	(2.8)P	3.0	3.0	3.0	3.0	3.1	(3.1)C	(3.2)CP	(3.0)CC	2.9	(2.9)J	(2.7)J	(3.1)J
26	2.7F	2.6	2.6	2.7	2.8	2.6F	3.2F	3.3	3.3	3.0	3.0	3.0	3.0	3.0	2.9	3.0	3.1	(3.2)CC	(3.3)C	(3.0)JC	3.1F	(2.8)JF	C(3.1)FJ	2.9F
27	2.8F	2.9F	2.9F	(3.2)J	A	(2.7)A	(3.2)JF	3.4	3.3	3.3	3.1	3.1	2.8	3.0	3.0	3.0	(3.3)PC	(3.3)PC	(3.4)PC	(3.1)PC	3.1	(3.1)JC	(3.0)JC	(3.0)JC
28	(3.0)JC	(3.0)JC	3.0	3.0	2.9	3.0	3.1	3.5	3.3	3.2	(3.3)P	(3.2)CP	3.1	3.0	3.0	2.9	(3.1)CP	(3.3)CP	C(3.3)CP	(3.0)CP	2.9	2.9	(2.9)J	(2.7)J
29	(2.7)J	(2.7)JF	(2.7)JF	2.5F	2.6	2.7FK	2.8FK	3.2FK	3.0K	3.0K	3.0K	2.9K	2.8K	2.9K	2.9	2.9	3.0	3.0	3.0	2.8	(2.7)J	(2.8)J	(2.8)J	(2.8)F
30	2.8	2.9	2.7	2.7	2.6	(2.7)A	(3.3)J	3.4	3.4	3.4	3.1	3.1	(3.0)P	P(3.1)SC	3.1	(3.1)SF	(3.2)CP	(3.3)CP	(3.3)CP	3.1	3.1	(2.9)JF	(2.9)JF	(2.9)JC
31																								
Median	2.8	2.8	2.7	2.8	2.8	2.8	3.2	3.3	3.3	3.2	3.1	3.0	2.9	2.9	2.9	2.9	3.0	3.0	3.1	3.1	3.0	(2.9)	(2.9)	(2.8)
Count	28	29	29	30	29	28	30	30	30	30	30	29	30	30	30	29	29	29	28	29	29	28	29	29

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

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TABLE 49

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D. C.

IONOSPHERIC DATA

Form adopted June 1946

FI-M3000 , ____ (Unit) September (Month), 1948

(Characteristic)

Observed at Washington, D. C.

Lat 39.0° N , Long 77.5° W

National Bureau Of Standards (Institution)

Scaled by E. J. W. J.J.S. , J.M.C.

Calculated by: K.L.B. A.G.J. J.J.S.

75° W Mean Time

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							Q^{K}	34^{K}	35^{K}	38^{K}	40^{K}	37^{K}	38^{K}	37^{H}_{K}	$(37)^{C}_{K}$	36^{F}_{K}	$(35)^{C}_{K}$	33^{K}						
2								Q^{K}	L^{K}	L^{K}	37^{H}_{K}	38^{H}_{K}	41^{H}_{K}	35^{K}	36^{K}	35^{K}	C^{K}	C^{K}						
3								Q	L	L	36	36	C	37	37	38	L	L						
4								Q	L	L	35	L	L	L	L	L	Q	Q						
5								Q	L	L	39	L	L	L	38	38	L	L						
6								L	L	L	L	L	L	L	L	C	Q	Q						
7								Q	Q	$(37)^{S}$	S^{C}	L	L	L^{C}	L	L	L	Q						
8								Q	L	L	37	L	L^{H}	35^{H}	35	L	L	L						
9								Q	L	L	$(33)^{H}$	39	L	L	L	L	L	L						
10								Q	L	L	L	L	L	33	L	L	L	Q						
11								Q	L	L	L	32	L	L	35	L	L	L						
12								Q	Q	L	L	L	L	L	L	L	Q	Q						
13								Q	L	L	L	L	L	L	L	L	L	Q						
14								Q	L	L	L	L	L	L	L	Q	Q	Q						
15								Q	L	L	L	L	L	L	L	L	L	Q						
16								L^{K}	L^{K}	34^{K}	L^{K}	B^{K}	L^{C}_{K}	33^{K}	L^{K}	L^{K}	L	Q						
17								Q	Q	L	L	Q	L	L	L	L	Q	Q						
18								Q	Q	L	Q	L	L	L	L	L	Q	Q						
19								Q	Q	Q	L	L	L	L	L	L^{H}	L	Q						
20								Q	Q	Q	Q	L	L	Q	L	L	Q	Q						
21								Q	Q	Q	L^{C}	L	L	L	L	Q	Q	Q						
22								Q	Q	Q	L	L	L^{B}	L^{C}	Q	L	Q	Q						
23								Q	Q	L	L	Q	Q	L	L	L	L	Q						
24								Q	L	L	L	L	36	L	L	L	L	Q						
25								Q	Q	Q	38	Q	L	Q	L	L	Q	Q						
26								Q	Q	Q	L	L	L	L	L	L	Q	Q						
27								Q	Q	L	L	L	L	L	L	L	Q	Q						
28								Q	Q	L	Q	L	L	L	L	L	Q	Q						
29								Q^{K}	Q^{K}	L^{K}	35^{K}	L^{K}	L^{K}	L^{K}	L	L	Q	Q						
30								Q	Q	L	L	L	L	L	L	L	Q	Q						
31																								
Median											37	37		35	36									
Count											9	5		6	6									

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

TABLE 50

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D.C.

Form adopted June 1946

IONOSPHERIC DATA

E-M1500 (Characteristic), ____ (Unit), September (Month), 1948

Observed at Washington, D.C.

Lat 39.0°N, Long 77.5°W

75° W Mean Time

National Bureau Of Standards (Institution)

Scaled by: E.J.W., J.J.S., J.M.C.

Calculated by: K.L.B., A.G.J., J.J.S.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							C K	4.5 K	(4.8) A K	A K	4.4 K	4.6 K	(4.2) C K	C K	C K	4.3 K	4.5 F K	A K	A K					
2							(3.7) H K	A K	A K	4.5 K	(4.1) C K	4.3 K	4.4 K	(4.6) C K	4.4 K	4.3 K	C K	C K	C K					
3							(4.6)H	4.5	A	4.2	4.2	4.4	4.5	(4.6)C	(4.3)C	4.6	4.4	4.6	4.6					
4							4.2	4.2	4.3H	A	(4.2)C	4.3	(4.3)C	C	(4.1)C	(4.4)C	4.5	4.1	4.3					
5								4.4	4.7	A	A	(4.4)C	C	(4.6)C	C	4.6	4.3	4.4	4.2					
6								5.1	4.4	4.5	C	(4.4)C	4.4	4.4	(4.3)C	C	A	4.2H	4.0H					
7							(4.5)S	(4.5)S	(4.7)A	(4.6)C	(4.6)C	(4.6)C	C	(4.4)C	C	4.4	4.5	4.4	(4.4)C					
8								C	4.3	A	(4.6)C	C	C	C	(4.1)C	4.4	4.3	4.6	A					
9								4.0H	4.3H	4.6	C	C	(4.6)C	C	(4.3)C	C	(4.5) C F	(4.2)C	(4.5)C					
10							4.0	4.7	4.3H	4.0	(4.3)C	4.4	C	4.0	(4.2)C	4.2	4.2	4.2	(4.7)C					
11							(4.2)C	4.4H	4.0	(4.4)S	(4.4)A	4.3	C	4.0	4.3	4.3	4.2	4.3	A					
12							(4.6)C	4.2H	4.1	4.1	(4.1)C	4.0	A	A	4.2	4.2	4.0	4.2	4.0					
13							4.6	(4.4)H	4.5	A	(4.1)C	(4.2)C	(4.2)C	4.3	(4.2)C	(4.2)C	4.1	4.2	C					
14							4.2	4.2H	4.2	4.5	4.5	4.4	B	C	4.2	4.2	4.2	4.4	A					
15							A	A	4.6F	C	4.6F	4.3	4.3	4.5	4.3	4.3	4.2	4.1	(4.4) S C					
16							4.1K	4.0K	4.0 K	4.4 K	(4.4) C K	B K	(4.4) B K	B K	B K	4.2 K	4.3	(4.3) F A	(4.2)H					
17							(4.1)B	4.2	4.2	4.2	4.2	4.2	4.3	A	4.5	4.5	4.0	4.2	(4.4)C					
18							A	4.2	4.2	4.7	4.4	4.4	4.4	4.4	(4.3)B	B	4.2	3.9						
19							4.1	3.9	4.0	(4.1)H	4.1	4.2	4.2H	4.2	4.3	4.1	4.3	A	A					
20								4.0	4.3	4.2	4.4	4.4	4.5	4.2	(4.1)C	4.3	4.0	(4.2)C	(4.4)C					
21							C	4.4H	4.2	4.3	(4.2)C	4.2	(4.2)C	4.2	4.4	4.3	(4.4)C	4.4	C					
22							3.7	4.6	4.4	4.2	(4.1)C	(4.2)C	B	C	B	4.3	4.3	4.3						
23								(4.4)H	4.0	4.1	4.3	B	B	B	B	4.1	4.3	(3.8)C	3.8H					
24								(4.1)A	4.0	4.4	4.4	(4.3)B	(4.0)B	4.3	4.4	4.4	4.3	4.0						
25								4.3	4.4	4.3	B	4.4	B	(4.0)B	4.2	4.2	4.1	4.1	4.2					
26								(4.4)B	4.3 H	4.5	4.5	B	4.2	4.3	4.4	B	4.0	4.3						
27								4.3	4.1	4.5	(4.4)C	(4.3)C	4.3	4.4	4.5	A	4.0	4.1						
28								4.3	4.3	4.2	(4.2)B	4.3	4.3	(4.1)C	(4.3)C	4.2	4.0	4.5						
29								3.9 F K	4.1 K	4.2 K	(4.2) C K	(4.3) C K	C K	4.1 K	4.1	4.2	4.4	4.2						
30								4.1	4.1	4.2	(4.3)F	(4.3) S C	C	(4.4)C	4.5	4.2	4.1	4.1						
31																								
Median							4.2	4.3	4.3	4.3	(4.3)	4.3	4.3	4.3	4.3	4.3	4.2	4.2	4.4					
Count							13	27	27	24	26	25	18	20	24	25	28	27	14					

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

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Table 51

Ionospheric Storminess at Washington, D. C.

September 1948

Day	Ionospheric character* 00-12 GCT	Ionospheric character* 12-24 GCT	Principal storms Beginning GCT	Principal storms End GCT	Geomagnetic character** 00-12 GCT	Geomagnetic character** 12-24 GCT
1	4	6	0900	----	3	4
2	5	5	----	----	5	2
3	***	2	----	1000	2	3
4	3	2			3	3
5	1	1			3	1
6	1	2			2	2
7	1	2			3	2
8	2	3			2	2
9	1	2			2	2
10	1	1			1	3
11	1	3			3	2
12	2	1			3	4
13	2	1			2	2
14	2	1			2	1
15	2	2			2	3
16	1	4	1000	2100	3	3
17	1	2			2	2
18	1	1			1	3
19	1	2			3	2
20	1	1			1	2
21	1	1			2	2
22	0	2			2	3
23	1	0			3	3
24	1	3			3	3
25	2	1			4	4
26	1	0			4	3
27	1	1			1	1
28	1	2			0	0
29	2	4	1000	1900	4	3
30	1	1			3	3

*Ionosphere character figure (I-figure) for ionospheric storminess at Washington, D. C., during 12-hour period on an arbitrary scale of 0 to 9, 9 representing the greatest disturbance.

**Average for 12 hours of Cheltenham, Maryland, geomagnetic K-figures on an arbitrary scale of 0 to 9, 9 representing the greatest disturbance.

***No readable record. Refer to table 40 for detailed explanation.

----Dashes indicate continuing storm.

Table 52

Sudden Ionosphere Disturbances Observed at Washington D. C.

September 1948

Day	GCT Beginning	GCT End	Location of transmitters	Relative intensity at minimum*	Other phenomena
13	2125	2150	Ohio, D.C.	0.2	
16	1557	1615	Ohio, D.C., England, New Brunswick	0.0	Terr.mag.pulse** 1600-1610
16	1956	2020	Ohio	0.2	
18	1958	2050	Ohio, D.C.	0.3	
19	2000	2035	Ohio, D.C.	0.0	
21	1818	1850	Ohio	0.1	
22	1608	1630	Ohio, D.C., England, New Brunswick	0.0	
22	1752	1810	Ohio, England	0.2	
26	1959	2040	Ohio, D.C.	0.05	Terr.mag.pulse** 2000-2040

*Ratio of received field intensity during SID to average field intensity before and after, for station W8XAL, 6080 kilocycles, 600 kilometers distant.

**As observed on Cheltenham magnetogram of the United States Coast and Geodetic Survey.

Table 53

Sudden Ionosphere Disturbances Reported by RCA Communications, Inc., as Observed at Point Reyes, California

1948 Day	GCT Beginning	GCT End	Location of transmitters
August 4	0222	0249	Australia, China, Chosen, Hawaii, Japan, Philippine Is.
8	0220	0520	Australia, China, Chosen, Japan, Philippine Is.
16	0655	0725	China, Hawaii, Philippine Is.
September 22	0150	0230	Australia, China, Japan, Java, Philippine Is.
26	1810	1900	Australia, China, Hawaii, Japan, Philippine Is.

Table 54

Sudden Ionosphere Disturbances Reported by Engineer-in-Chief,

Cable and Wireless, Ltd., as Observed in England

1948 Day	GCT Beginning	GCT End	Receiving station	Location of transmitters
July 29	0745	0830	Brentwood	Austria, Bahrein I., Belgian Congo, Eritrea, France, Greece, Iran, Kenya, Madagascar, Palestine, Portugal, Southern Rhodesia, Switzerland, Thailand, Trans-Jordan, Turkey, U.S.S.R., Yugoslavia, Zanzibar
29	0743	0800	Somerton	Ceylon, China, India
29	1250	1330	Brentwood	Austria, Bahrein I., Belgian Congo, Canary Is., Chile, Colombia, France, Greece, India, Iran, Kenya, Madagascar, Malta, Palestine, Portugal, Spain, Switzerland, Syria, Trans-Jordan, Turkey, Yugoslavia
29	1253	1305	Somerton	Argentina, Brazil, New York, Union of S. Africa
30	0800	0820	Brentwood	Austria, Bahrein I., Belgian Congo, Eritrea, France, Greece, India, Kenya, Madagascar, Palestine, Portugal, Southern Rhodesia, Spain, Syria, Trans-Jordan, Turkey, U.S.S.R., Yugoslavia, Zanzibar
30	0803	0813	Somerton	Ceylon, China, Gold Coast, India, Union of S. Africa
August 30	1000	1020	Brentwood	Canary Is., Kenya, Portugal, Switzerland
September 12	0940	1015	Brentwood	Bahrein I., Madagascar, Southern Rhodesia, Zanzibar
16	1600	1615	Brentwood	Barbados, Canary Is., Malta, Spain
16	1600	1615	Somerton	Argentina, Brazil, Canada, Gold Coast, New York, Union of S. Africa
17	1127	1140	Brentwood	Austria, Bahrein I., Belgian Congo, Canary Is., Greece, Iran, Kenya, Malta, Palestine, Portugal, Spain, Switzerland, Zanzibar

Table 54 (Continued)

1948 Day	GCT Beginning	GCT End	Receiving station	Location of transmitters
September 17	1125	1140	Somerton	Argentina, Brazil, Gold Coast
19	0648	0720	Brentwood	Afghanistan, Bahrein I., Belgian Congo, Eritrea, India, Iran, Kenya, Palestine, Thailand, U.S.S.R., Zanzibar
19	0645	0720	Somerton	China, Union of S. Africa
20	0720	0900	Brentwood	Austria, Bahrein I., Belgian Congo, Eritrea, French Equatorial Africa, Greece, India, Iran, Kenya, Madagascar, Southern Rhodesia, Syria, Trans-Jordan, Turkey, U.S.S.R., Yugoslavia, Zanzibar
20	0720	0900	Somerton	Ceylon, China, Union of S. Africa
22	0604	0620	Brentwood	Bahrein I., Greece, India, Iran, Kenya, Southern Rhodesia, Syria, U.S.S.R., Zanzibar
22	1615	1625	Somerton	Argentina, Brazil, Canada

Note: Observers are invited to send to the CRPL information on times of beginning and end of sudden ionosphere disturbances for publication as above. Address letters to the Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D. C.

Table 55

Sudden Ionosphere Disturbances Reported by

International Telephone and Telegraph Corporation,

as Observed at Platanos, Argentina

1948 Day	GCT Beginning	GCT End	Location of transmitters
July 6	1525	1600	Bolivia, France, Netherlands, New York, Switzerland

Table 56

Provisional Radio Propagation Quality Figures
(Including Comparisons with CRPL Warnings and CRPL Probable Disturbed Period Forecasts)
August 1948

Day	North Atlantic: Quality figure 01-12 GCT	Quality figure 13-24 GCT	CRPL* Warning 01-12 GCT	CRPL* Warning 13-24 GCT	CRPL** Forecast of probable disturbed periods	Geomagnetic K_{Ch} 01-12 GCT	Geomagnetic K_{Ch} 13-24 GCT	North Pacific: Quality figure 01-12 GCT	Quality figure 13-24 GCT	CRPL* Warning 01-12 GCT	CRPL* Warning 13-24 GCT	CRPL** Forecast of probable disturbed periods	Geomagnetic K_{Ch} 01-12 GCT	Geomagnetic K_{Ch} 13-24 GCT
1	(4)	5	X		X	3	3	6	7	X		X	3	3
2	5	5				3	3	6	7				3	3
3	5	5	X			3	2	7	7	X			3	2
4	5	6				3	3	6	7				3	3
5	6	7	X			2	1	6	7	X			2	1
6	7	6				2	2	7	7				2	2
7	6	6				3	3	5	5				3	3
8	(3)	(2)		X	X	6	6	5	(4)		X	X	6	6
9	(3)	(3)	X	X	X	5	4	6	5	X	X	X	5	4
10	(3)	(2)	X	X	X	5	5	5	5	X	X	X	5	5
11	(3)	5	X	X		4	4	6	5	X	X		4	4
12	(4)	5	X	X		5	3	7	6	X	X		5	3
13	(4)	6	X	X		4	3	6	6	X	X		4	3
14	6	6				1	3	6	6				1	3
15	7	6				2	3	6	8				2	3
16	7	7				1	1	8	7				1	1
17	7	7				1	2	7	7				1	2
18	7	6				2	1	7	8				2	1
19	7	6				0	2	7	8				0	2
20	6	7				5	3	7	8				5	3
21	6	7				3	3	7	6				3	3
22	7	6				2	3	6	7				2	3
23	6	7				3	2	6	8				3	2
24	7	7				3	2	7	8				3	2
25	7	7				3	2	7	6				3	2
26	7	7			X	1	1	7	7			X	1	1
27	7	7			X	1	1	6	7			X	1	1
28	7	7				2	2	7	7				2	2
29	6	6				4	4	6	6				4	4
30	(3)	5		X		5	2	6	6		X		5	2
31	(4)	5	X	X		3	3	7	7	X	X		3	3
Score:														
H			8		4					1		1		
M			0		5					0		0		
G			20		20					20		25		
(S)			2		0					3		2		
S			1		2					7		3		

*Broadcast on WWV, Washington, D.C. Times of warnings recorded to nearest half day as broadcast.

**In addition to dates marked X, the following was designated as a probable disturbed day on forecasts more than eight days in advance of said date: August 28.

Quality Figure Scale:
- 1 - Useless
- 2 - Very poor
- 3 - Poor
- 4 - Poor to fair
- 5 - Fair
- 6 - Fair to good
- 7 - Good
- 8 - Very good
- 9 - Excellent

Symbols:
- X Warning given or probable disturbed date
- H Quality 4 or worse on day or half day of warning
- M Quality 4 or worse on day or half day of no warning
- G Quality 5 or better on day of no warning
- (S) Quality 5 on day of warning
- S Quality 6 or better on day of warning
- ( ) Quality 4 or worse (disturbed)

Geomagnetic K_{Ch} on the standard scale of 0 to 9, 9 representing the greatest disturbance

Table 57

American and Zürich Provisional Relative Sunspot Numbers

September 1948

Date	R_A*	R_Z**	Date	R_A*	R_Z**
1	148	138	16	209	181
2	169	142	17	242	208
3	152	123	18	250	228
4	153	113	19	265	222
5	123	103	20	250	213
6	89	82	21	243	203
7	65	50	22	258	237
8	72	75	23	267	221
9	82	68	24	255	216
10	92	56	25	186	170
11	127	73	26	183	159
12	160	95	27	177	115
13	194	114	28	153	148
14	189	132	29	155	130
15	190	134	30	139	147
			Mean:	174.6	143.2

*Combination of 47 observers; see page 8.

**Dependent on observations at Zürich Observatory and its stations at Locarno and Arosa.

Table 58a

Coronal observations at Climax, Colorado (5303A), east limb

Date GCT	Degrees north of the solar equator																		0°	Degrees south of the solar equator																		P
	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	
1948																																						
Sept. 1.7	-	-	-	-	-	-	-	-	-	-	-	4	6	2	3	8	10	10	9	5	4	4	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	f20
2.6a	-	-	-	-	-	-	-	-	-	-	-	3	5	3	5	4	4	3	3	4	5	5	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-	f20
3.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	3	4	4	4	3	-	-	-	3	6	8	5	-	-	-	-	-	-	-	-	-	-	-	-	f20
4.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8	10	8	-	-	-	-	-	-	-	-	-	-	-	-	f20
5.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	7	8	5	-	-	-	5	7	7	5	-	-	-	-	-	-	-	-	-	-	-	f20
8.0	-	-	-	-	-	-	-	-	-	-	-	-	5	8	9	10	9	6	6	8	13	10	10	11	8	-	-	-	-	-	-	X	X	X	X	X	X	f25
9.6	-	-	-	-	-	-	-	-	-	-	-	8	10	11	12	11	14	12	13	12	10	12	14	13	13	10	8	7	6	-	-	X	X	X	X	X	X	f25
10.7	-	-	-	-	-	-	-	-	5	7	8	6	8	11	15	13	14	14	13	13	10	10	12	13	14	12	8	6	-	-	-	-	-	-	-	-	-	f25
11.9	-	-	-	-	-	-	-	-	-	-	-	-	7	11	13	15	12	11	10	9	8	-	8	9	9	8	-	-	-	-	-	X	X	X	X	X	X	f25
12.7	-	-	-	-	-	-	-	-	-	-	-	-	6	8	8	11	9	7	7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	f25
20.9a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	11	5	3	5	5	7	10	6	2	-	-	-	-	-	-	-	-	-	-	-	-	-	f25
21.7a	-	-	-	-	-	-	-	-	-	-	-	-	8	10	10	14	9	4	3	4	4	5	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	f25
23.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	10	16	15	13	10	7	9	13	14	12	9	10	5	-	-	-	-	-	-	-	-	-	-	-	f25
25.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	6	7	8	8	-	-	-	7	10	11	11	12	10	7	-	-	-	-	X	X	X	X	X	X	f25

Table 59a

Coronal observations at Climax, Colorado (6374A), east limb

Date GCT	Degrees north of the solar equator																		0°	Degrees south of the solar equator																		P
	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	
1948																																						
Sept.1.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	f20
2.6a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	f20
3.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	f20
4.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	f20
5.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	2	4	5	1	-	-	-	-	-	-	-	-	-	-	-	f20
8.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	7	9	1	-	-	-	-	-	-	X	X	X	X	X	X	f25
9.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	10	5	3	3	4	1	-	1	1	1	1	-	-	-	-	-	X	X	X	X	X	X	f25
10.7	-	-	-	-	-	-	-	-	-	-	-	-	-	1	11	7	3	5	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	f25
11.9	-	-	-	-	-	-	-	-	-	-	-	-	-	5	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	X	X	X	X	X	f25
12.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	f25
20.9a	-	-	-	-	-	-	-	-	-	-	-	-	1	5	4	6	1	-	-	3	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	f25
21.7a	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-	-	f25
23.7a	-	-	-	-	-	-	-	-	-	-	-	-	3	4	4	3	3	2	-	1	4	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	f25
25.7a	-	-	-	-	-	-	-	-	-	-	-	-	3	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	X	X	X	X	X	f25

Table 58b

Coronal observations at Climax, Colorado (5303A), west limb

Date GCT	Degrees south of the solar equator																		0°	Degrees north of the solar equator																		P
	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	
1948																																						
Sept.1.7	-	-	-	-	-	-	-	-	-	-	4	5	5	10	9	9	8	7	7	8	9	8	11	14	12	5	4	3	-	-	-	-	-	-	-	-	-	f20
2.6a	-	-	-	-	-	-	-	-	-	-	-	-	-	6	10	9	10	10	8	9	10	9	9	10	12	7	-	-	-	-	-	-	-	-	-	-	-	f20
3.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	6	10	10	9	7	5	5	8	7	7	8	7	-	-	-	-	-	-	-	-	-	-	-	-	f20
4.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	f20
5.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	6	8	8	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	f20
8.0	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-	-	f25
9.6	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-	-	f25
10.7	-	-	-	-	-	-	-	-	-	-	-	-	-	7	9	13	15	11	9	10	10	12	16	12	5	-	-	-	-	-	-	-	-	-	-	-	-	f25
11.9	X	X	X	X	X	X	X	X	X	-	-	-	-	8	9	10	10	10	7	6	5	5	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	f25
12.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	f25
20.9a	-	-	-	-	-	-	-	-	-	5	/	2	4	13	11	10	10	9	9	7	6	6	5	2	-	-	-	-	-	-	-	-	-	-	-	-	-	f25
21.7a	-	-	-	-	-	-	-	2	3	4	5	6	6	12	15	13	11	10	10	9	9	10	11	5	-	-	-	-	-	-	-	-	-	-	-	-	-	f25
23.7a	-	-	-	-	-	-	2	3	3	2	8	8	7	10	15	14	13	13	16	15	13	14	10	8	5	4	3	2	-	-	-	-	-	-	-	-	-	f25
25.7a	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-	-	f25

Table 59b

Coronal observations at Climax, Colorado (6374A), west limb

Date GCT	Degrees south of the solar equator																		0°	Degrees north of the solar equator																		P
	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	
1948																																						
Sept.1.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	2	2	-	1	1	8	1	7	8	1	1	-	-	-	-	-	-	-	-	-	-	f20
2.6a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	3	-	-	-	-	-	1	3	5	1	-	-	-	-	-	-	-	-	-	-	-	f20
3.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	3	2	1	-	-	-	-	-	-	-	-	-	-	-	f20
4.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	f20
5.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	f20
8.0	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-	-	f25
9.6	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-	-	f25
10.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	3	3	-	-	-	-	7	6	-	-	-	-	-	-	-	-	-	-	-	-	-	f25
11.9	X	X	X	X	X	X	X	X	X	-	-	-	-	-	-	2	4	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	f25
12.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	f25
20.9a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	-	-	-	-	-	-	-	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	f25
21.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	1	2	1	-	-	-	-	-	-	X	X	X	X	X	X	f25
23.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	1	-	-	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	f25
25.7a	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-	-	f25

Table 60a

Coronal observations at Climax, Colorado (6704A), east limb

Date GCT	Degrees north of the solar equator																		0°	Degrees south of the solar equator																		P
	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	
1948																																						
Sept.1.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	∤20
2.6a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	∤20
3.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	∤20
4.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	∤20
5.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	∤20
8.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	X	X	X	X	X	∤25
9.6	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	-	-	X	X	X	X	X	X	∤25
10.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	1	1	1	1	1	1	1	1	-	-	-	-	-	-	-	-	-	-	∤25
11.9	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	1	1	1	1	1	-	-	-	-	-	-	-	-	-	X	X	X	X	X	X	∤25
12.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	∤25
20.9a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	∤25
21.7a	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-	-	∤25
23.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	∤25
25.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	X	X	X	X	X	∤25

Table 60b

Coronal observations at Climax, Colorado (6704A), west limb

Date GCT	Degrees south of the solar equator																		0°	Degrees north of the solar equator																		P
	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	
1948																																						
Sept.1.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	∠20
2.6a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	∠20
3.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	∠20
4.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	∠20
5.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	∠20
8.0	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	′X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-	-	∠25
9.6	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-	-	∠25
10.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	∠25
11.9	X	X	X	X	X	X	X	X	X	-	-	-	-	-	1	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	∠25
12.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	∠25
20.9a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	∠25
21.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	X	X	X	X	X	∠25
23.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	1	1	1	1	1	1	1	1	1	1	-	-	-	-	-	-	-	-	-	-	∠25
25.7a	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-	-	∠25

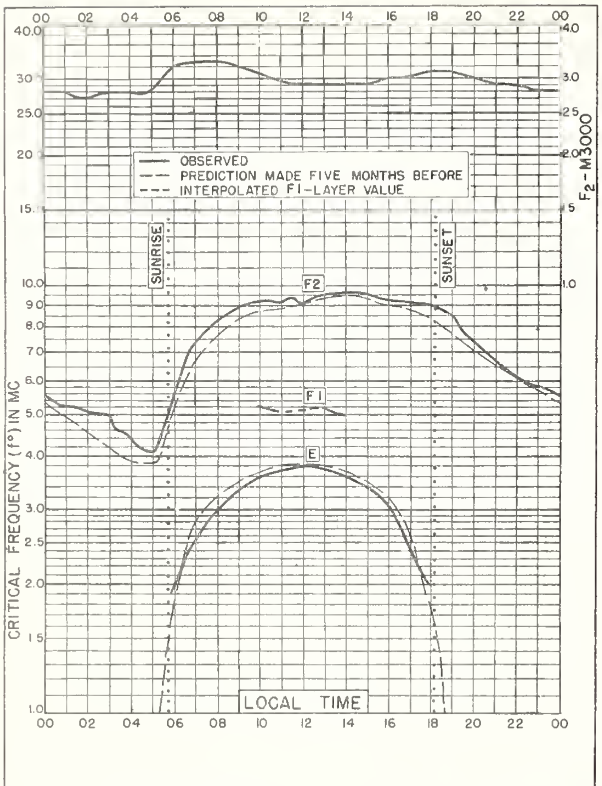

Fig. 1. WASHINGTON, D.C.
39.0°N 77.5°W SEPTEMBER 1948

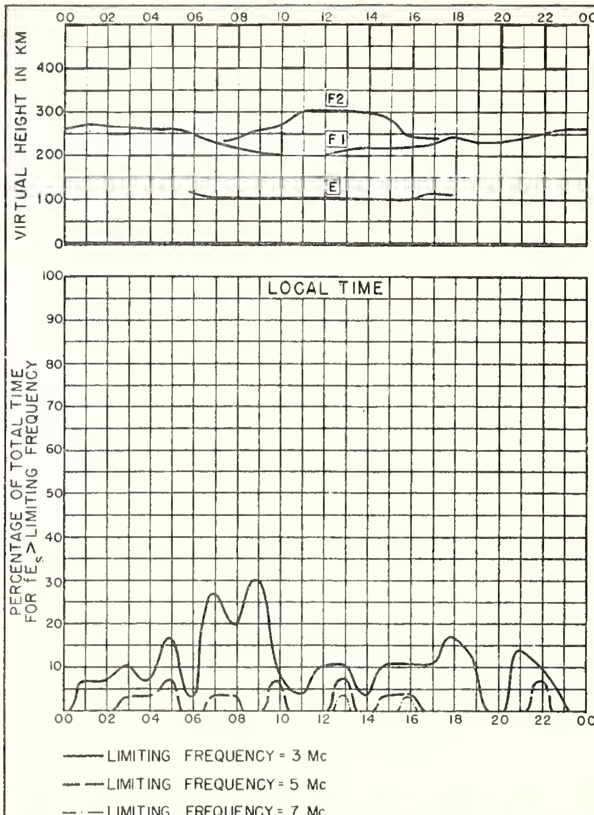

Fig. 2. WASHINGTON, D.C. SEPTEMBER 1948

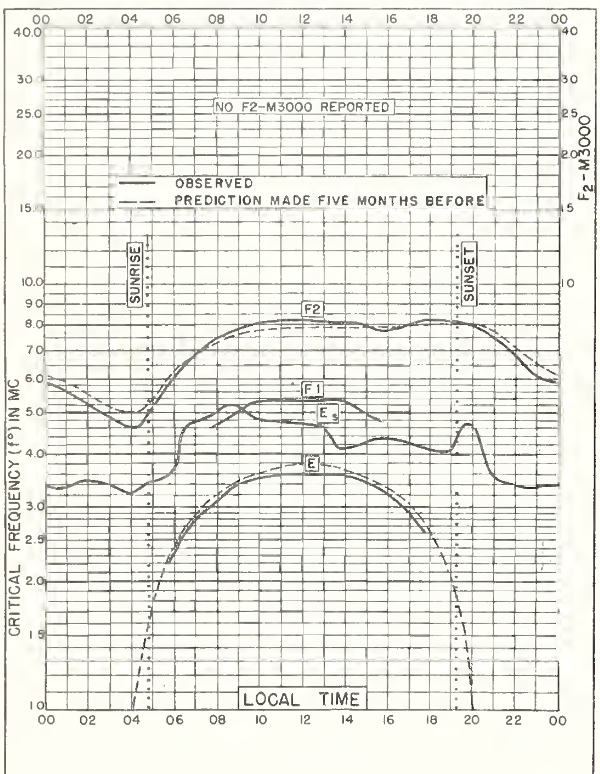

Fig. 3. LINDAU/HARZ, GERMANY
51.6°N, 10.1°E AUGUST 1948

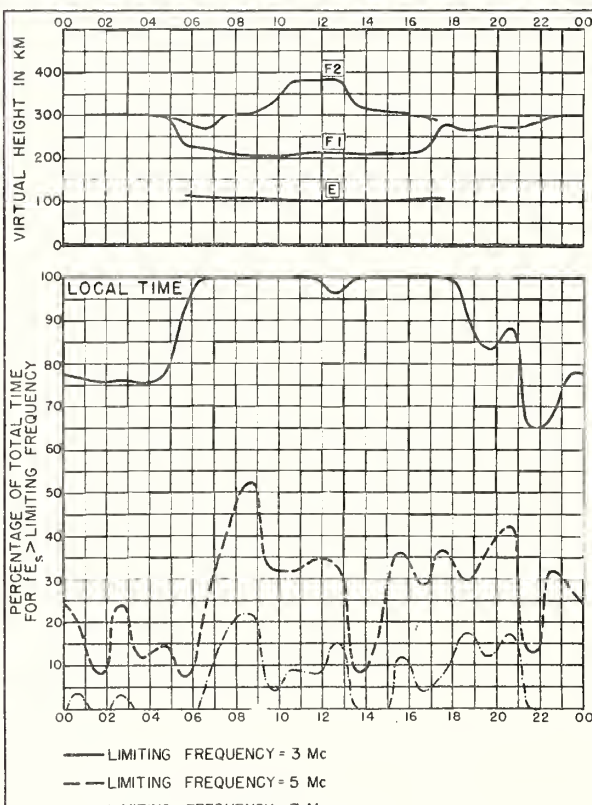

Fig. 4. LINDAU/HARZ, GERMANY AUGUST 1948

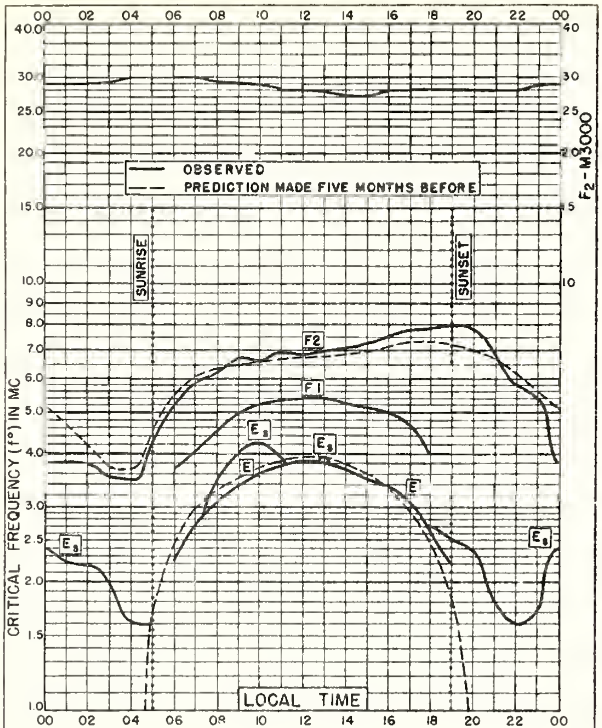

Fig. 5. ST. JOHN'S, NEWFOUNDLAND
47.6°N, 52.7°W AUGUST 1948

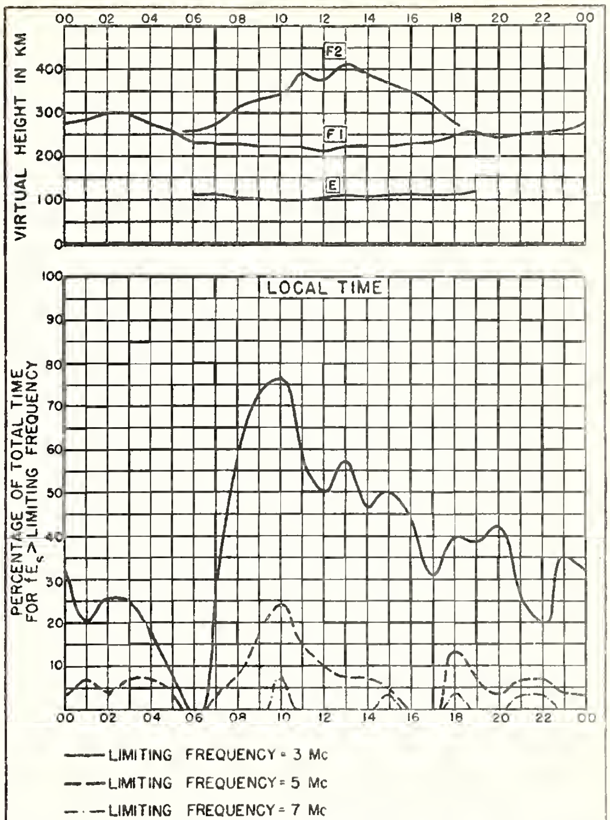

Fig. 6. ST. JOHN'S, NEWFOUNDLAND AUGUST 1948

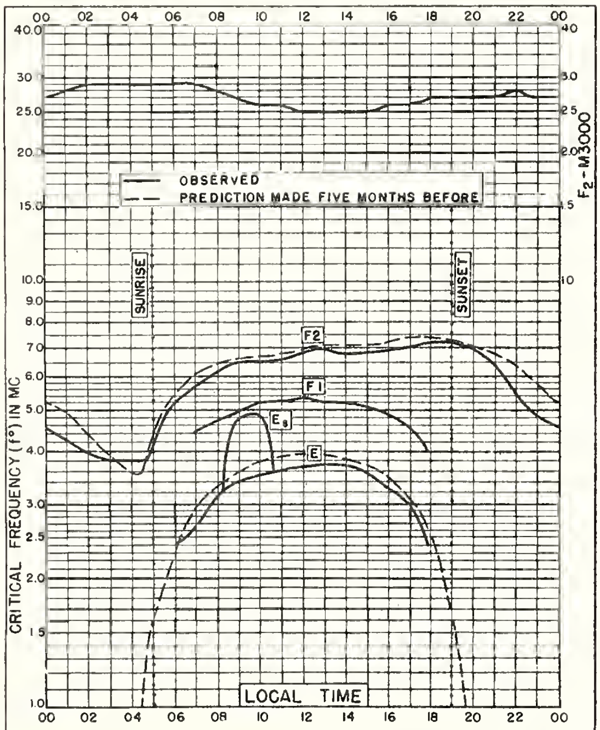

Fig. 7 OTTAWA, CANADA
45. 5°N, 75. 8°W AUGUST 1948

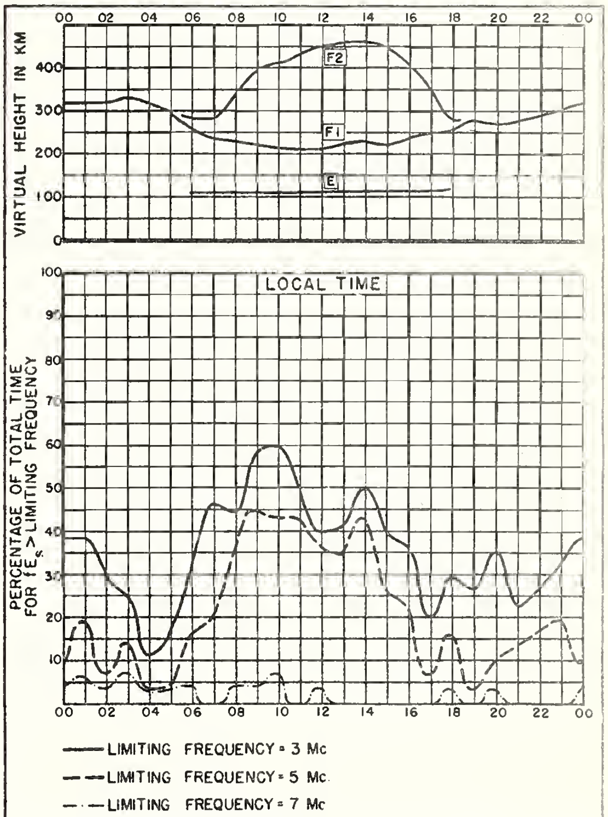

Fig. 8. OTTAWA, CANADA AUGUST 1948

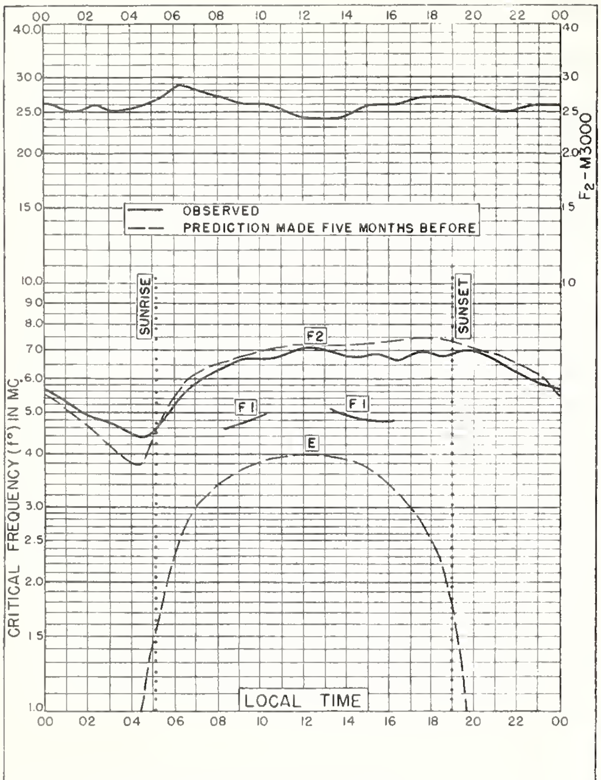

Fig. 9. BOSTON, MASSACHUSETTS
42.4°N, 71.2°W AUGUST 1948

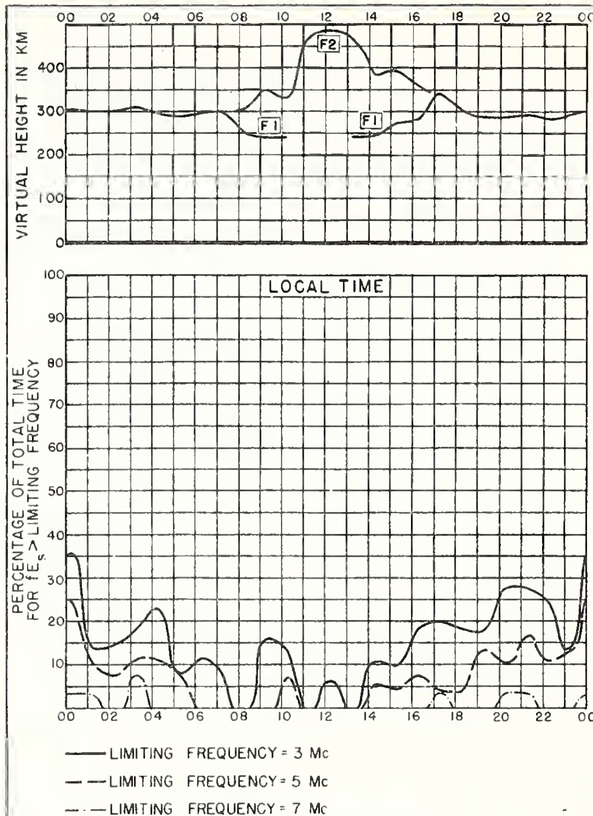

Fig. 10 BOSTON, MASSACHUSETTS AUGUST 1948

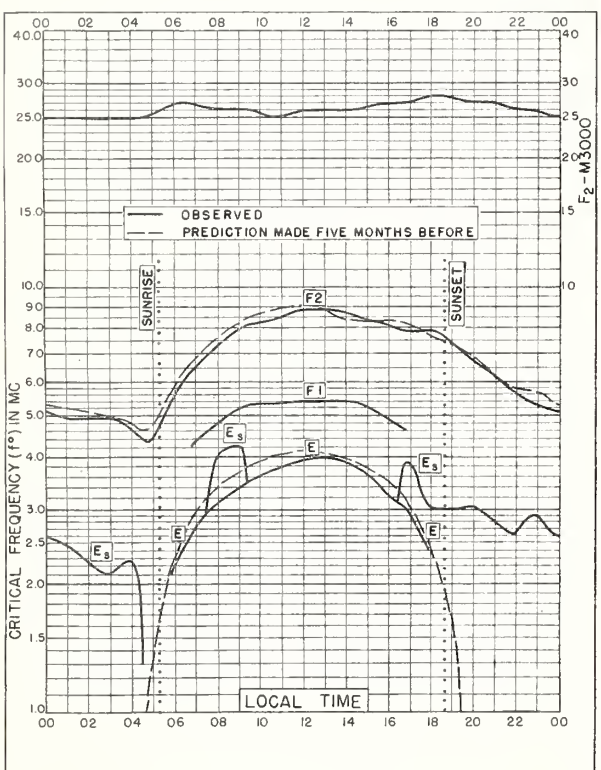

Fig 11. SAN FRANCISCO, CALIFORNIA
37.4°N, 122.2°W AUGUST 1948

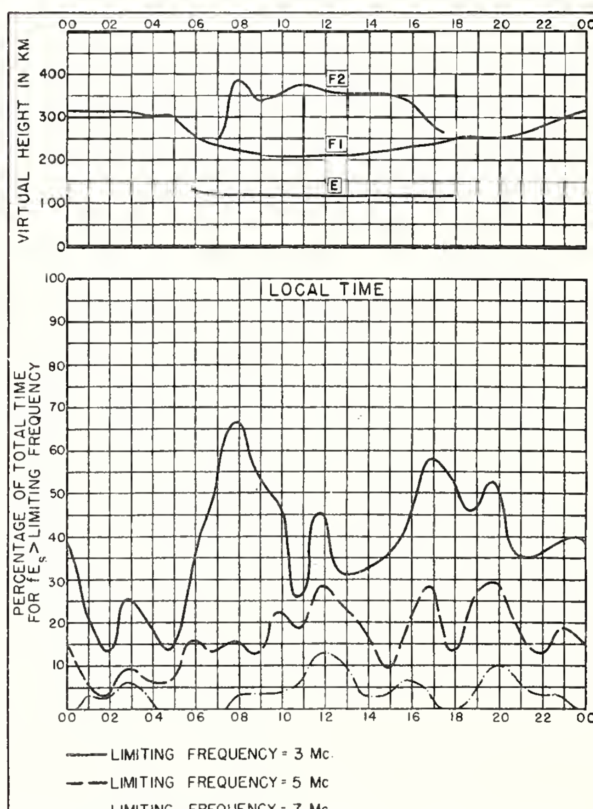

Fig. 12. SAN FRANCISCO, CALIFORNIA AUGUST 1948

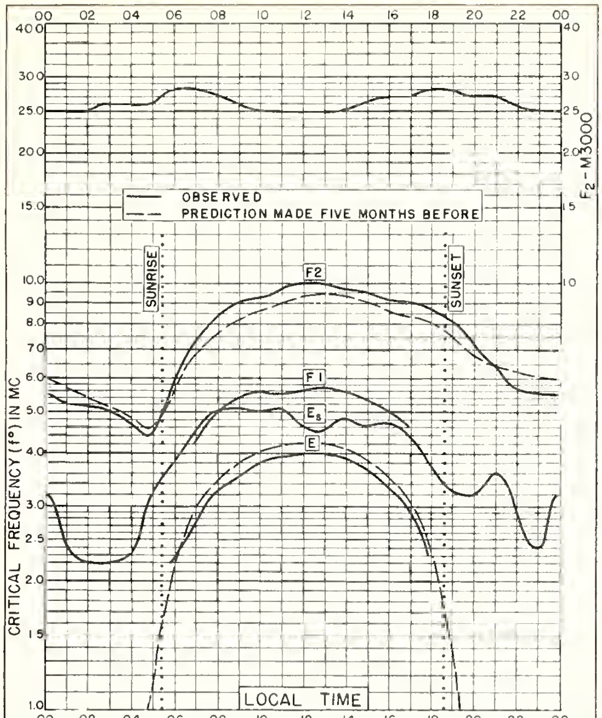

Fig. 13. WHITE SANDS, NEW MEXICO
32. 3°N, 106. 5°W AUGUST 1948

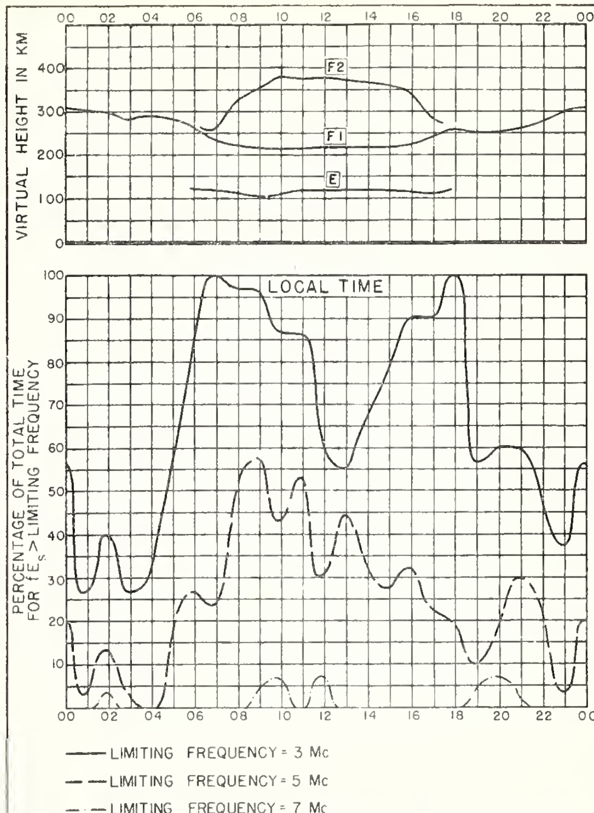

Fig. 14. WHITE SANDS, NEW MEXICO AUGUST 1948

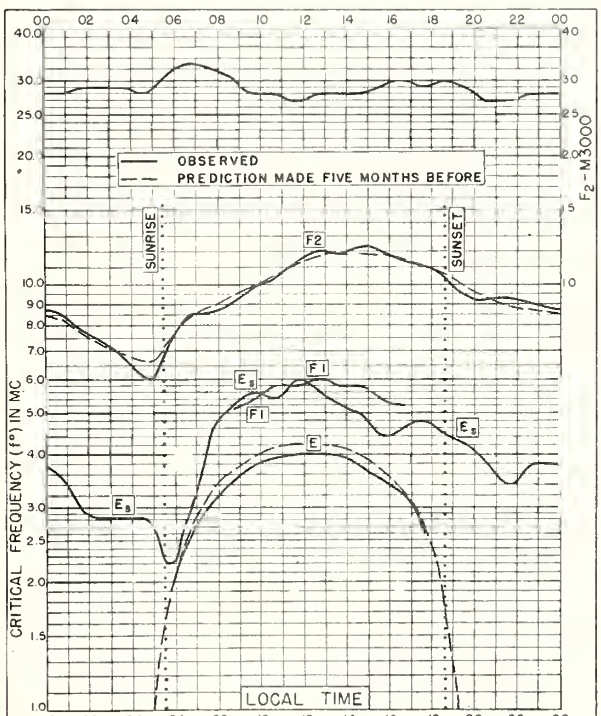

Fig. 15. WUCHANG, CHINA
30. 6°N, 114. 4°E AUGUST 1948

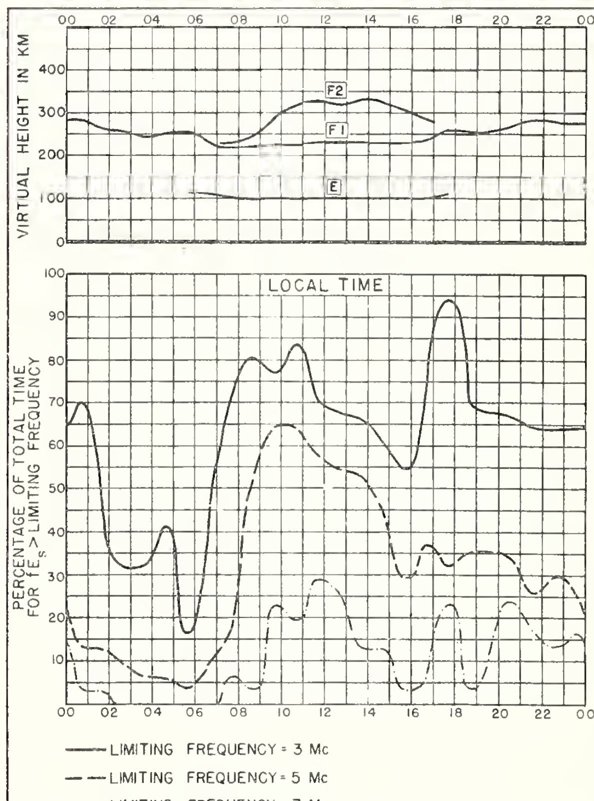

Fig. 16. WUCHANG, CHINA AUGUST 1948

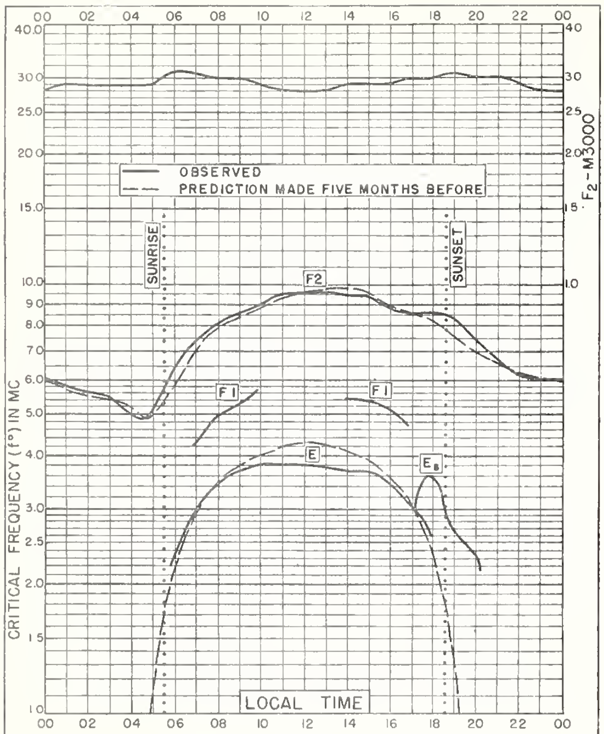

Fig. 17 BATON ROUGE, LOUISIANA
30.5°N, 91.2°W AUGUST 1948

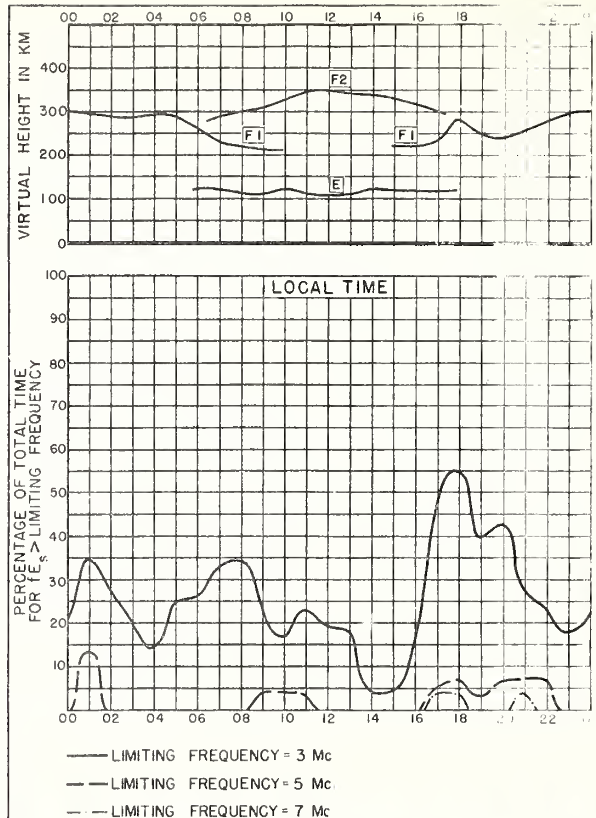

Fig. 18. BATON ROUGE, LOUISIANA AUGUST 1948

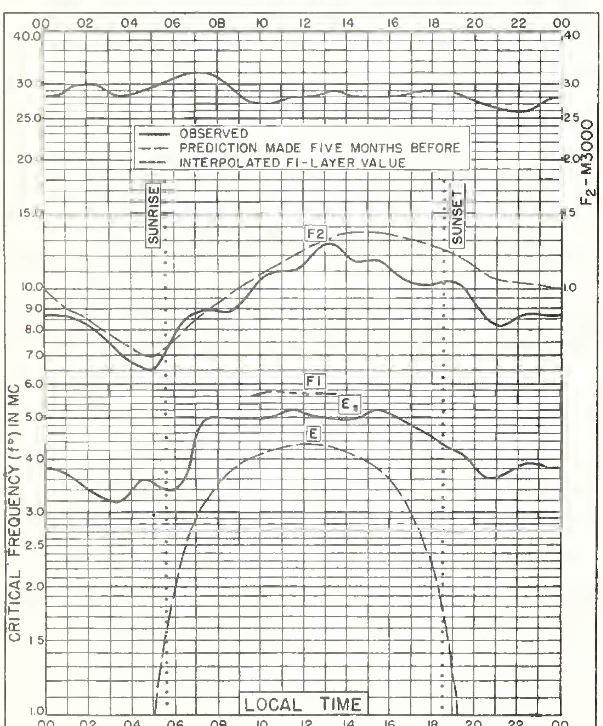

Fig. 19. OKINAWA I.
26.3°N, 127.7°E AUGUST 1948

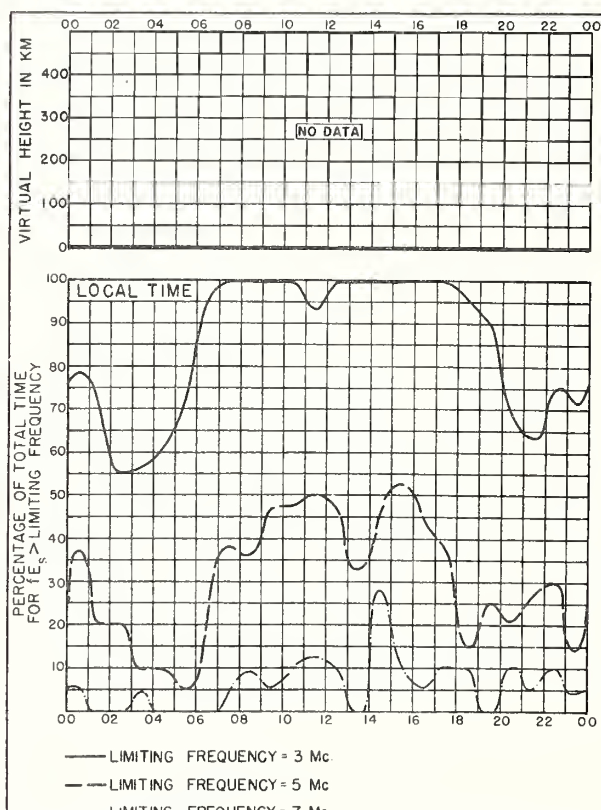

Fig. 20. OKINAWA I. AUGUST 1948

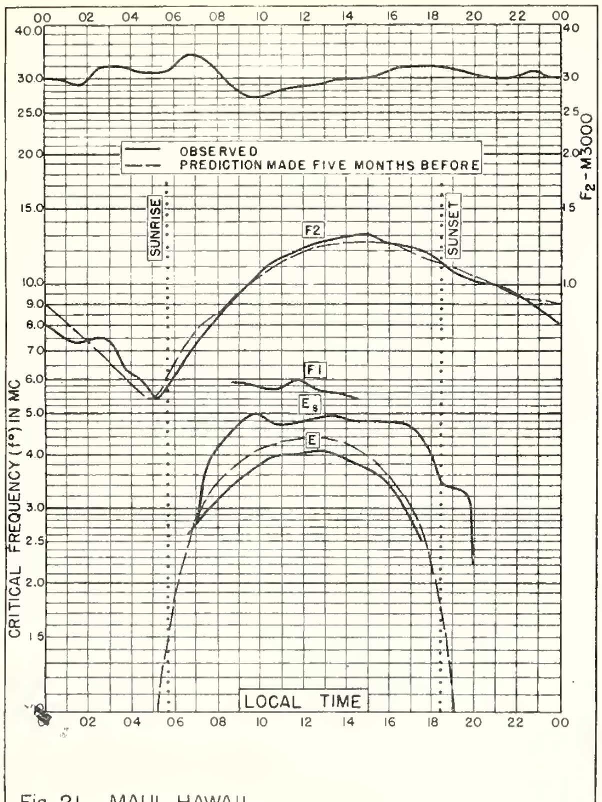

Fig. 21. MAUI, HAWAII
20.8°N, 156.5°W AUGUST 1948

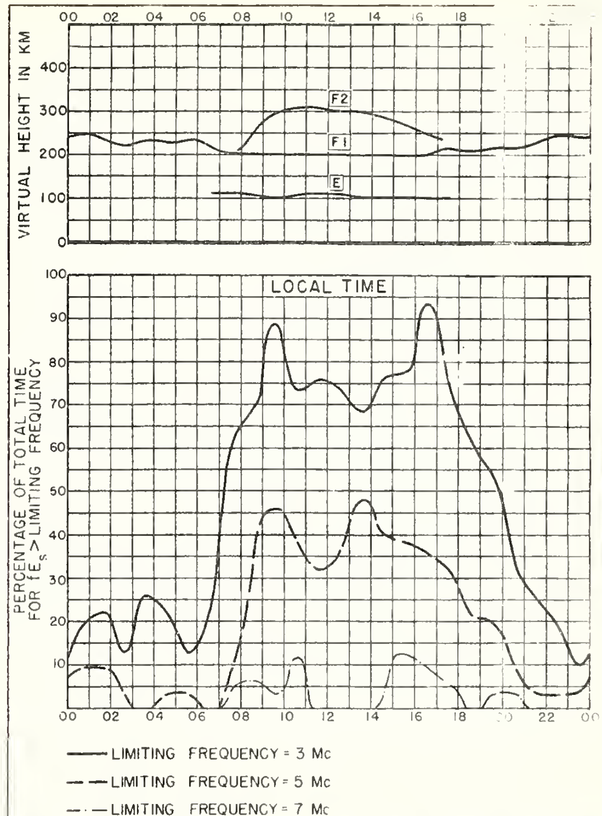

Fig. 22. MAUI, HAWAII AUGUST 1948

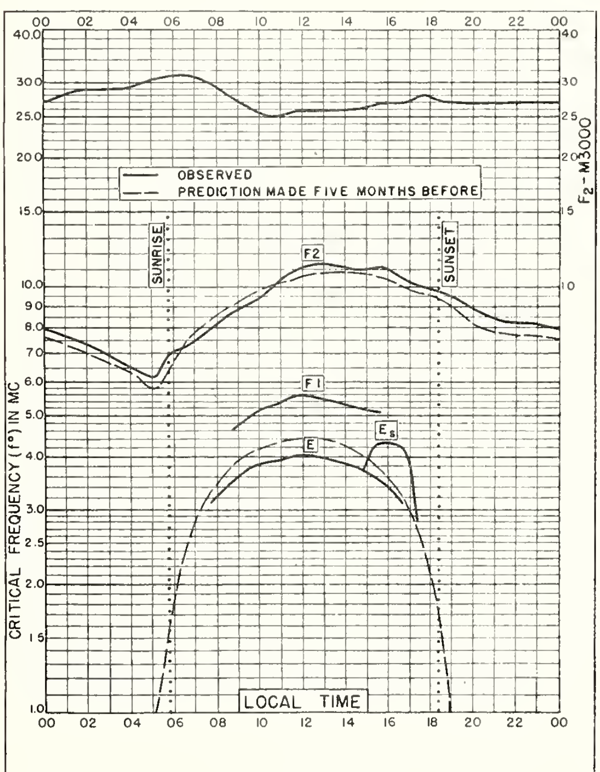

Fig. 23. SAN JUAN, PUERTO RICO
18.4°N, 66.1°W AUGUST 1948

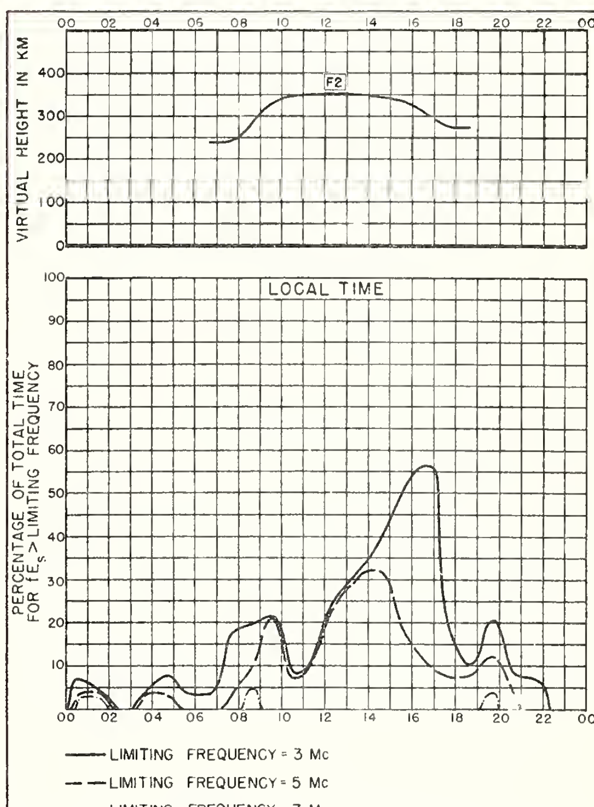

Fig. 24. SAN JUAN, PUERTO RICO AUGUST 1948

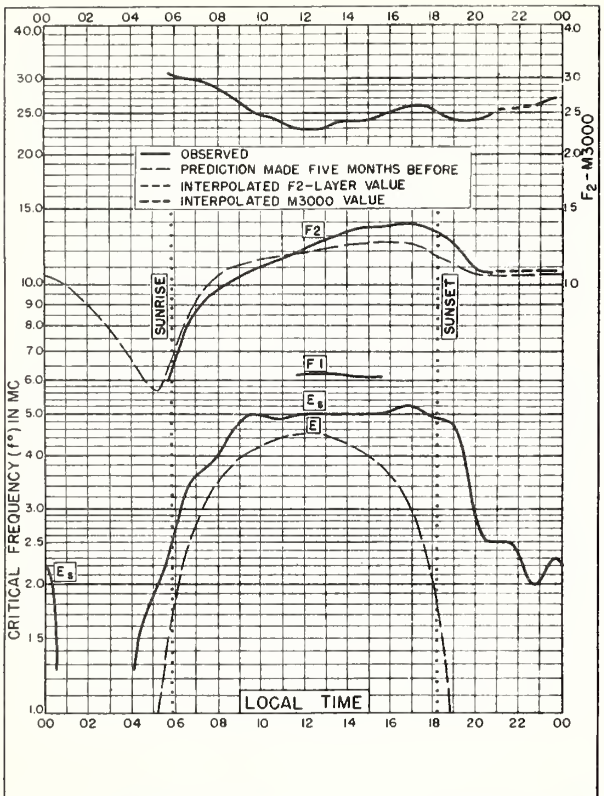

Fig. 25. GUAM I.
13. 6°N, 144. 9°E AUGUST 1948

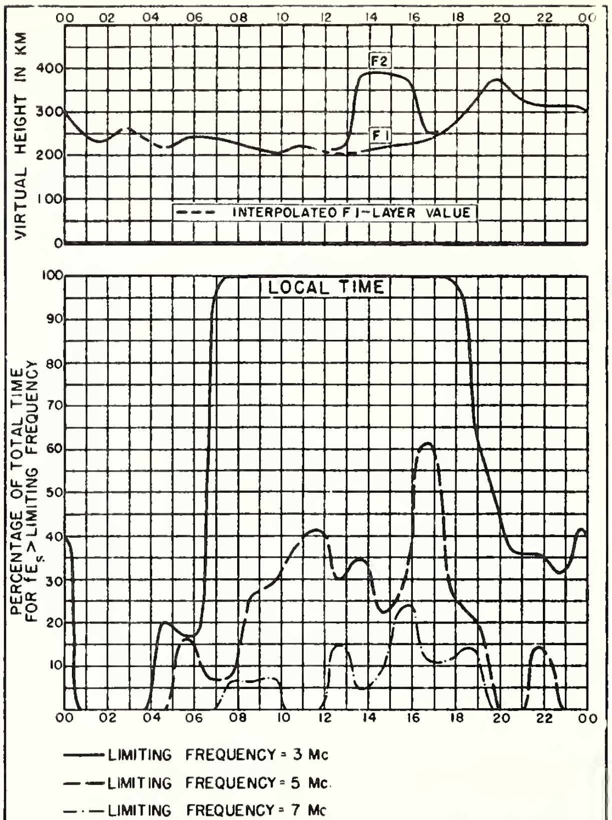

Fig. 26. GUAM I. AUGUST 1948

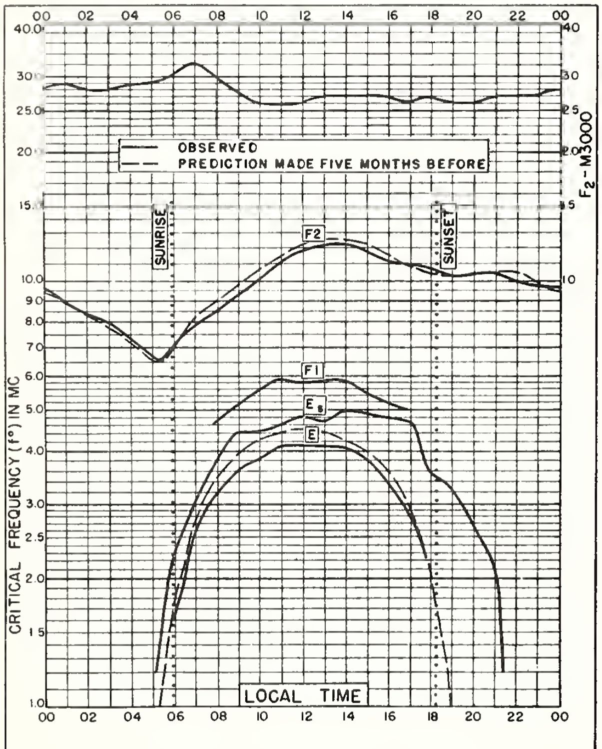

Fig. 27. TRINIDAD, BRIT. WEST INDIES
10. 6°N, 61. 2°W AUGUST 1948

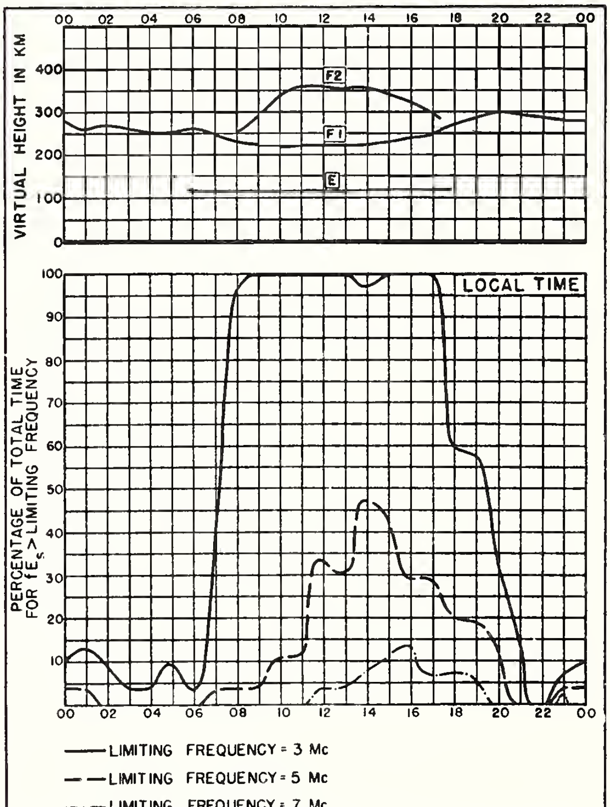

Fig. 28. TRINIDAD, BRIT. WEST INDIES AUGUST 1948

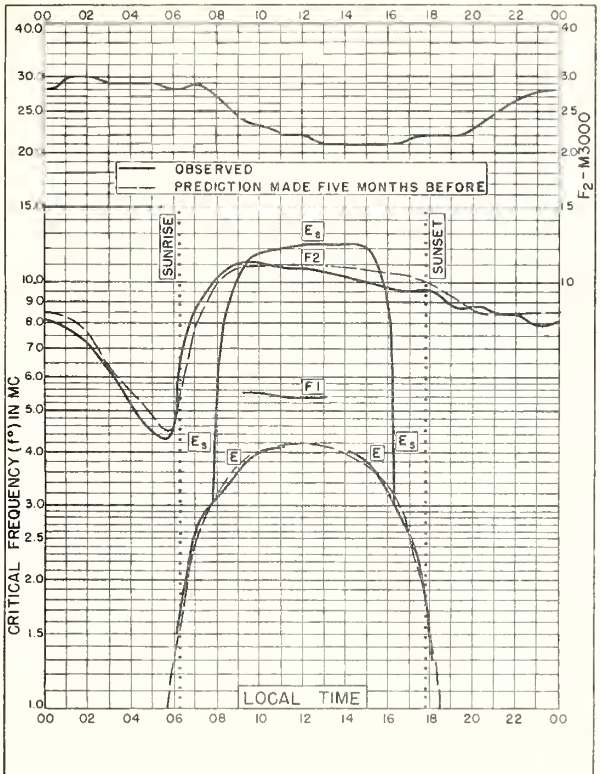

Fig. 29. HUANCAYO, PERU
12.0°S, 75.3°W AUGUST 1948

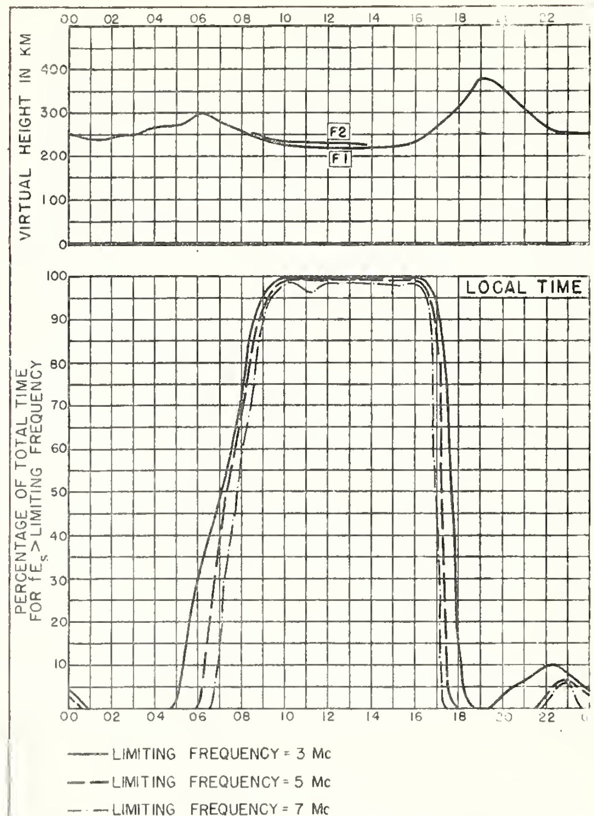

Fig. 30. HUANCAYO, PERU AUGUST 1948

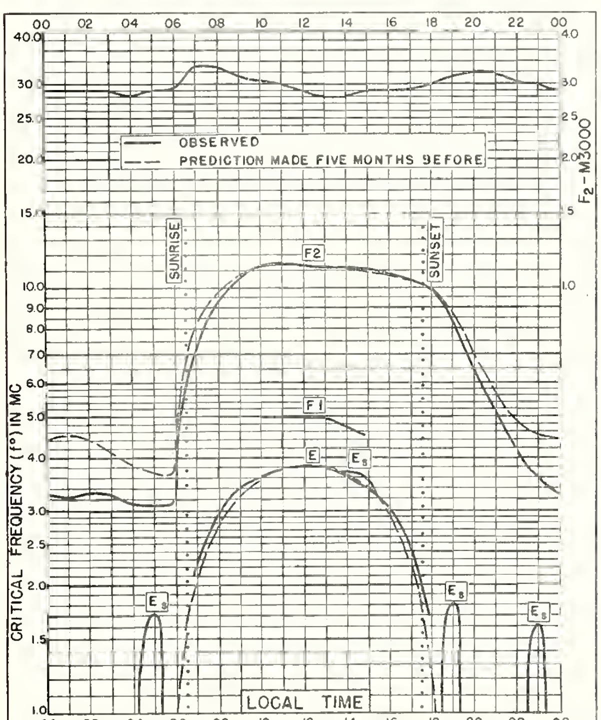

Fig. 31. JOHANNESBURG, U. OF S. AFRICA
26.2°S, 28.0°E AUGUST 1948

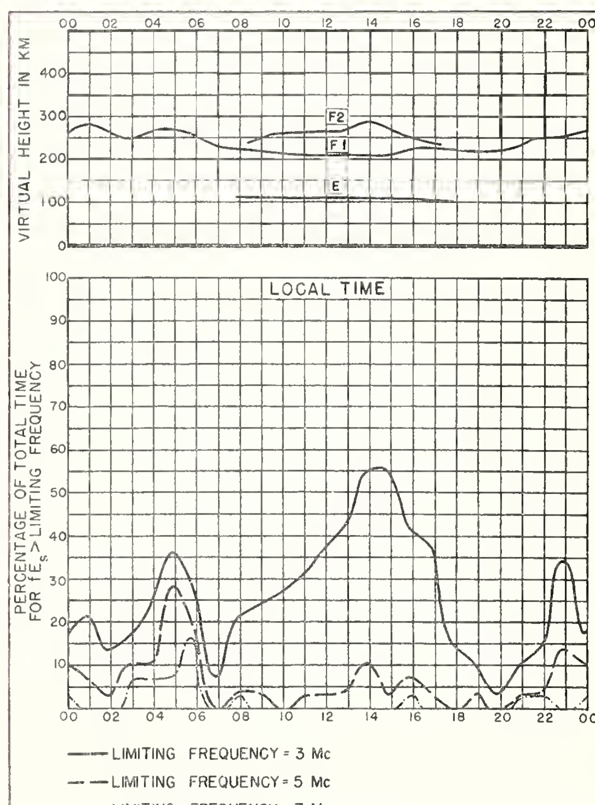

Fig. 32. JOHANNESBURG, U. OF S. AFRICA AUGUST 1948

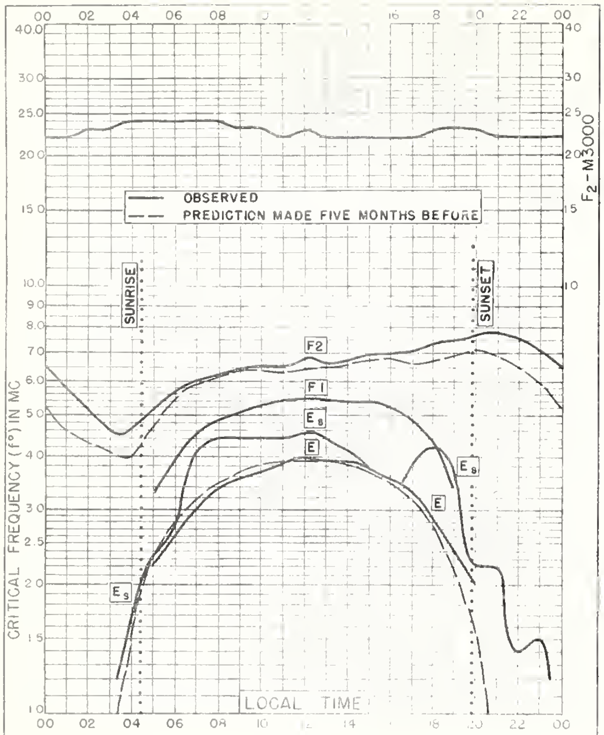

Fig. 33. ST. JOHN'S, NEWFOUNDLAND
47.6°N, 52.7°W JULY 1948

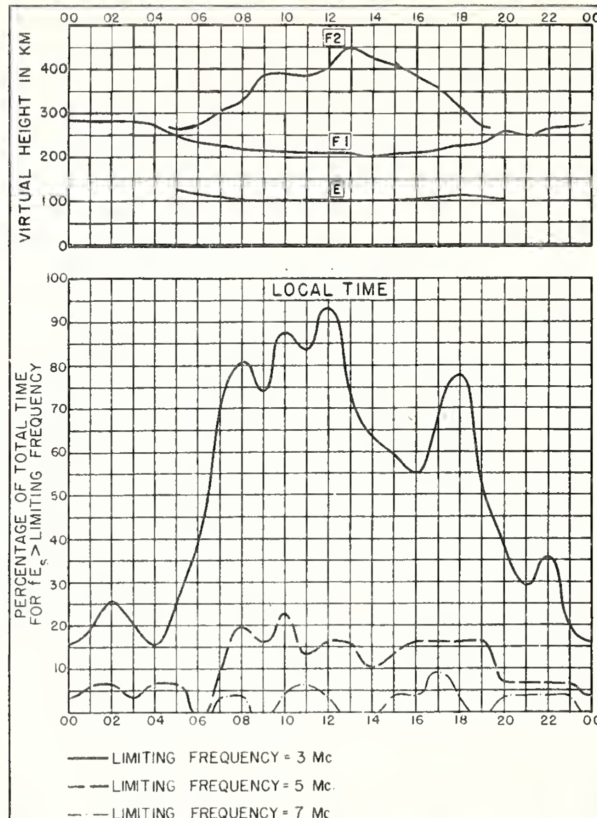

Fig. 34 ST. JOHN'S, NEWFOUNDLAND JULY 1948

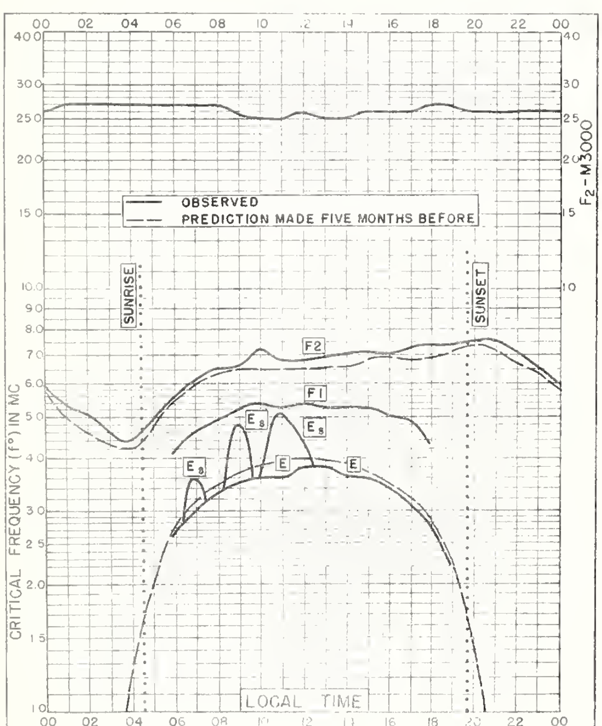

Fig. 35. OTTAWA, CANADA
45.5°N, 75.8°W JULY 1948

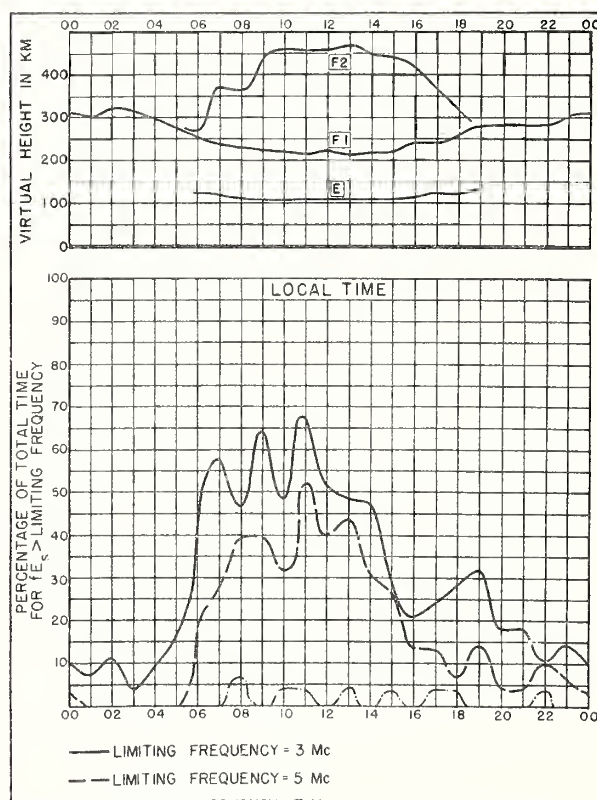

Fig. 36. OTTAWA, CANADA JULY 1948

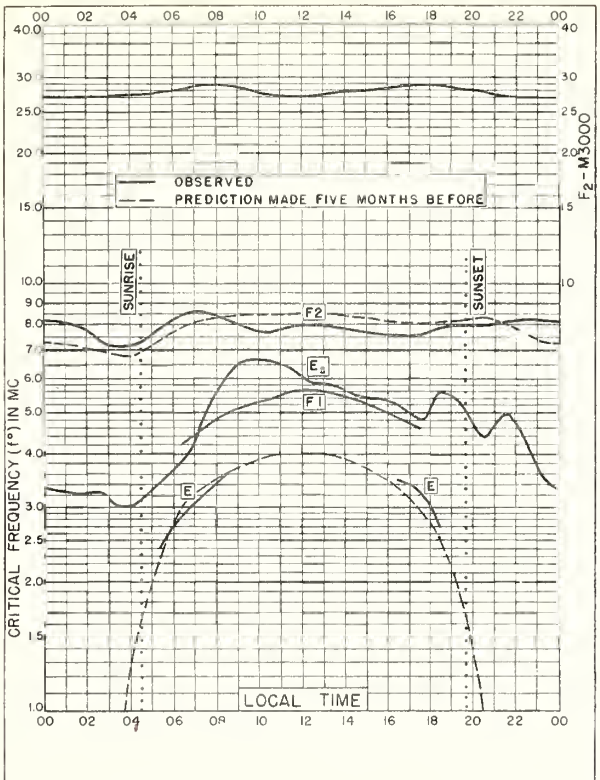

Fig. 37 WAKKANAI, JAPAN
45.4°N, 141.7°E JULY 1948

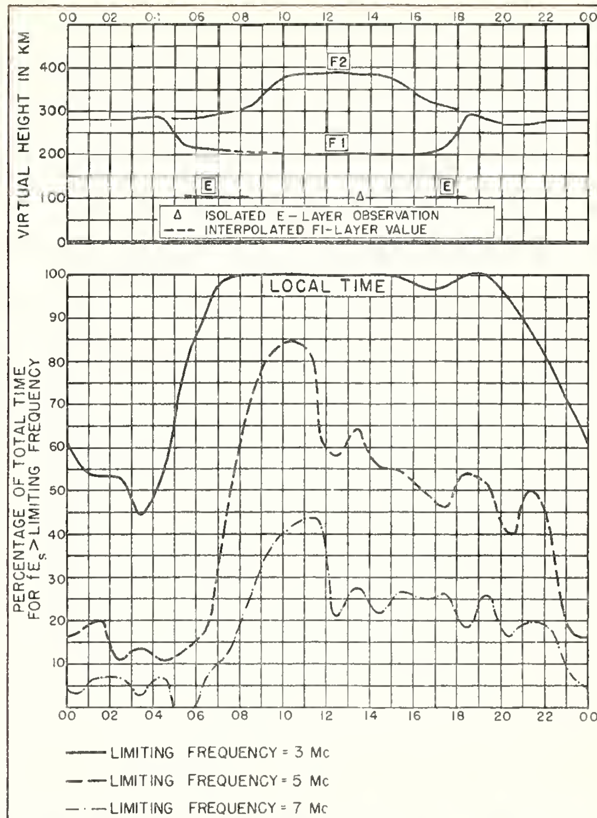

Fig 38. WAKKANAI, JAPAN JULY 1948

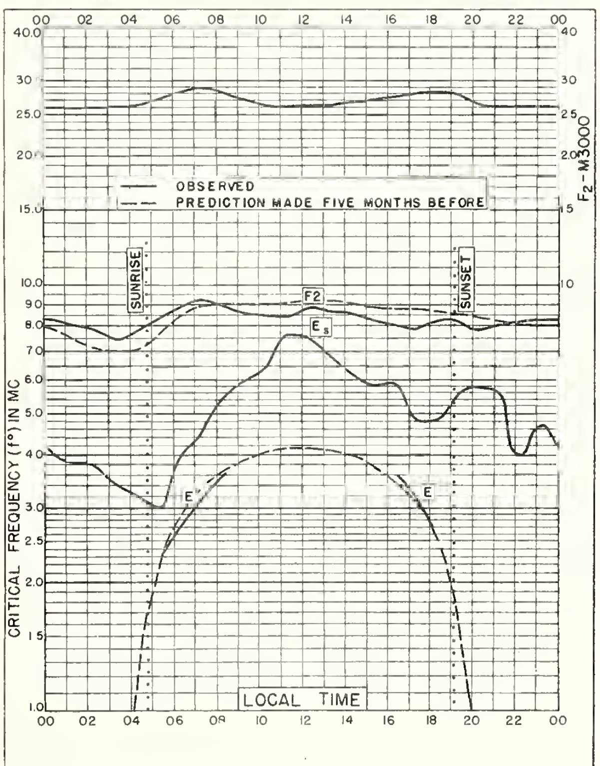

Fig. 39. FUKAURA, JAPAN
40.6°N, 139.9°E JULY 1948

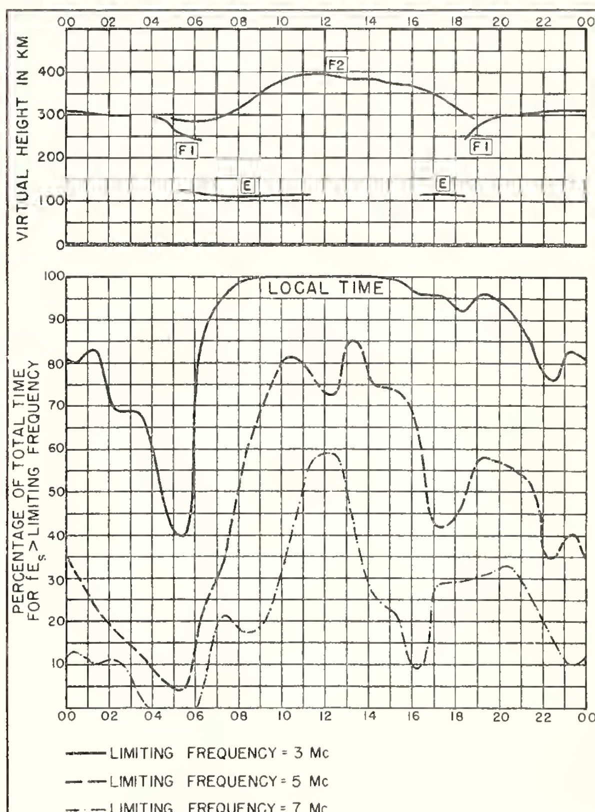

Fig 40. FUKAURA, JAPAN JULY 1948

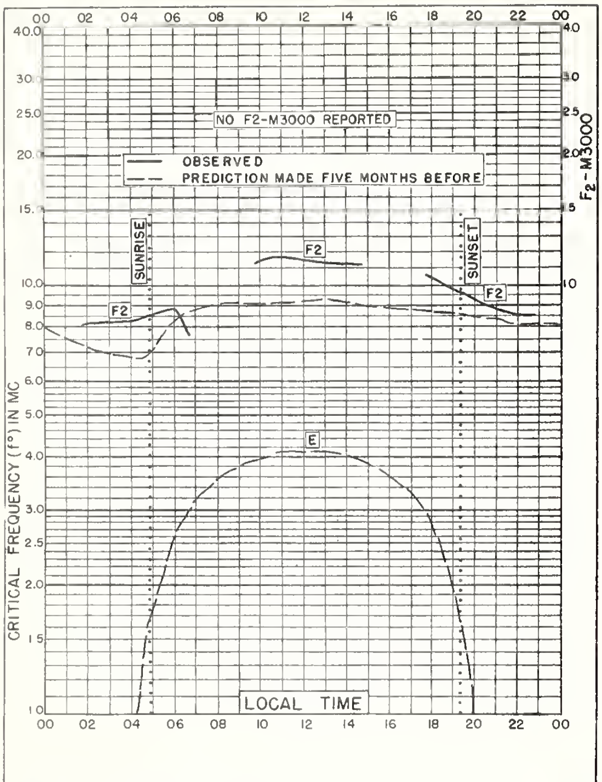

Fig. 41. PEIPING, CHINA
39.9°N, 116.4°E JULY 1948

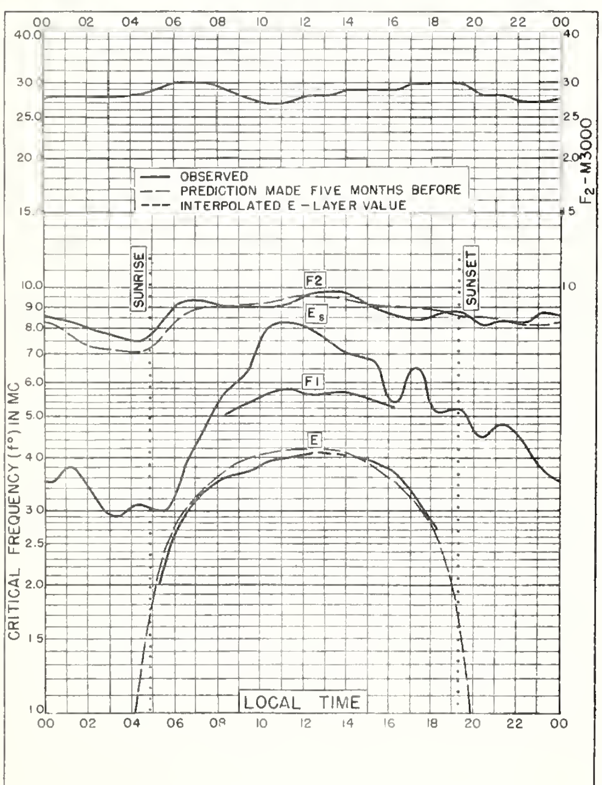

Fig. 42. SHIBATA, JAPAN
37.9°N, 139.3°E JULY 1948

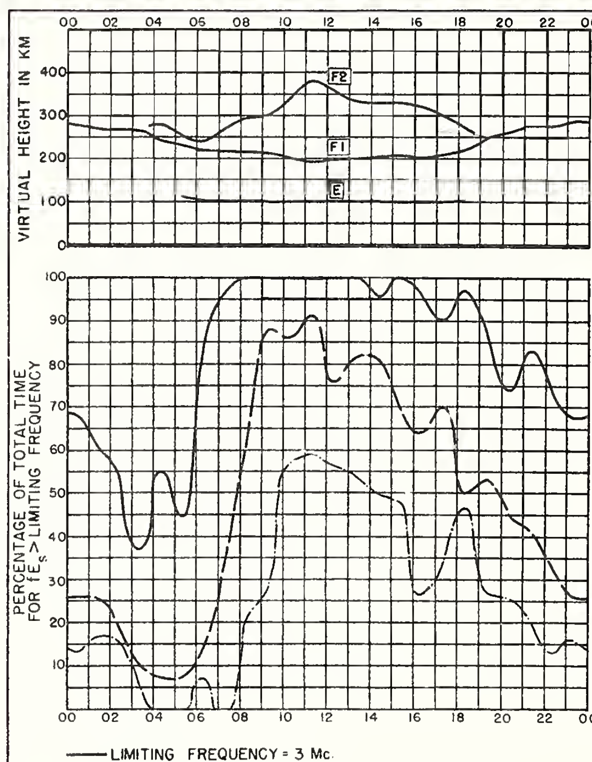

Fig. 43. SHIBATA, JAPAN JULY 1948

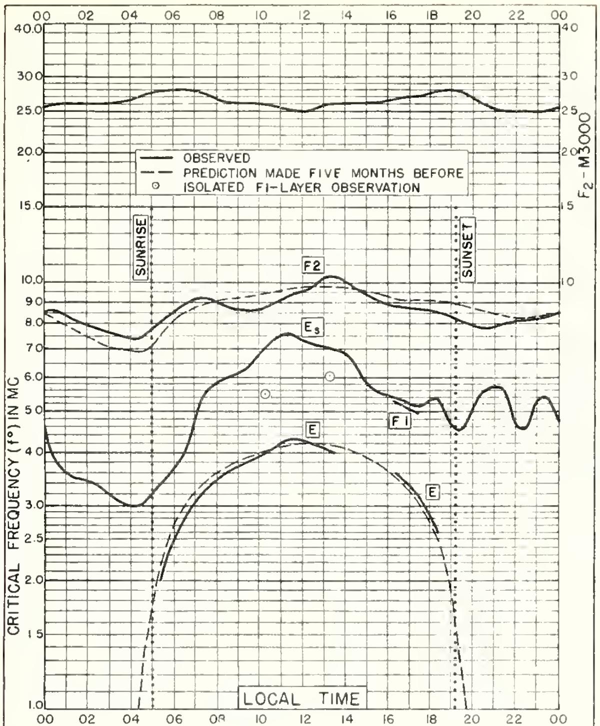

Fig. 44. TOKYO, JAPAN
35.7°N, 139.5°E JULY 1948

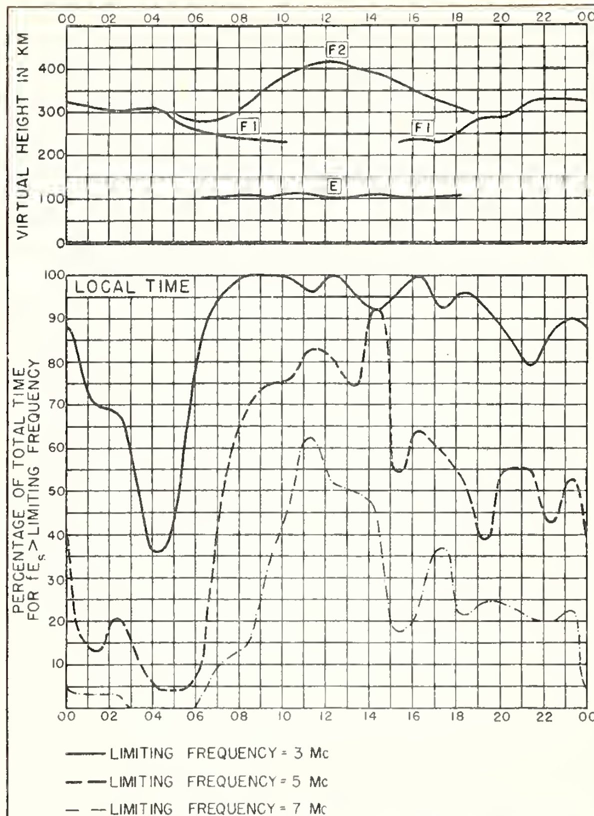

Fig. 45. TOKYO, JAPAN JULY 1948

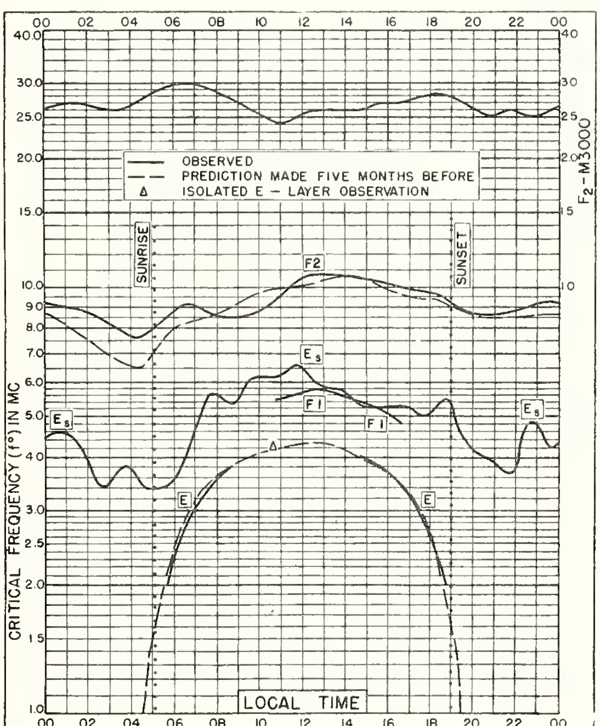

Fig. 46. YAMAKAWA, JAPAN
31.2°N, 130.6°E JULY 1948

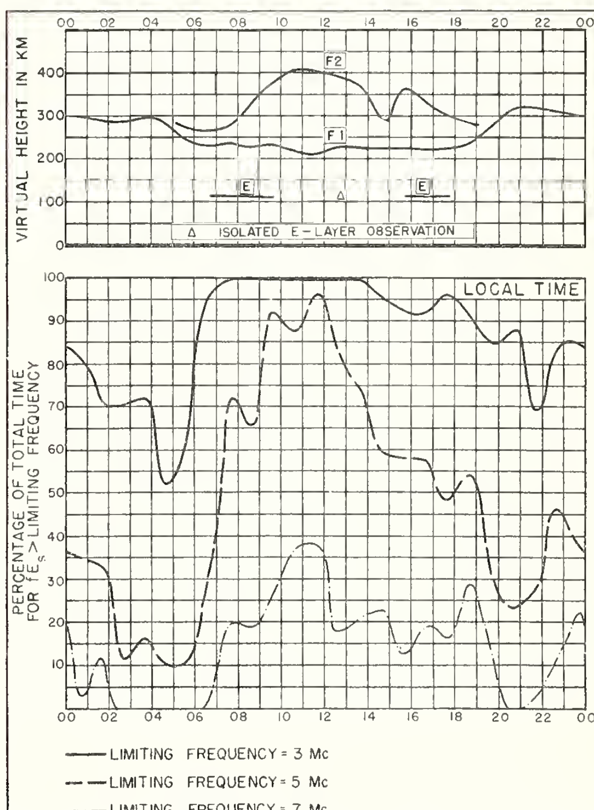

Fig. 47. YAMAKAWA, JAPAN JULY 1948

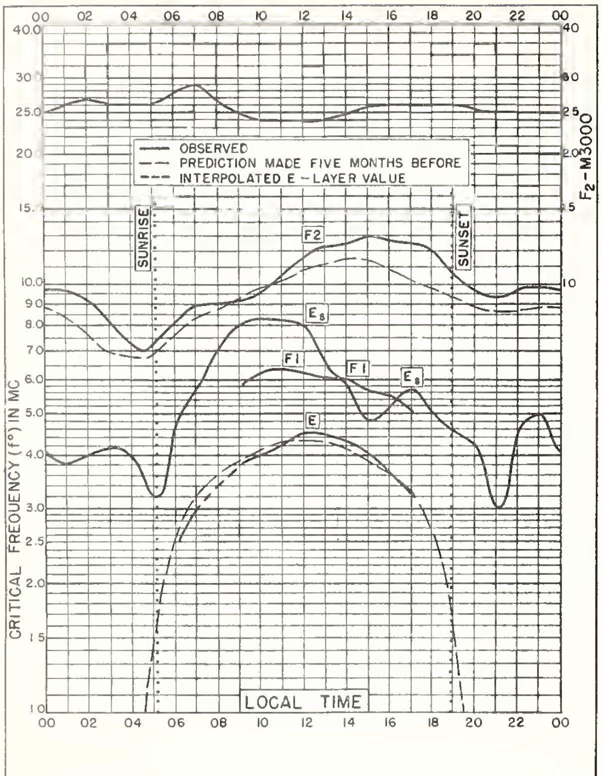

Fig. 48. CHUNGKING, CHINA
29.4°N, 106.8°E JULY 1948

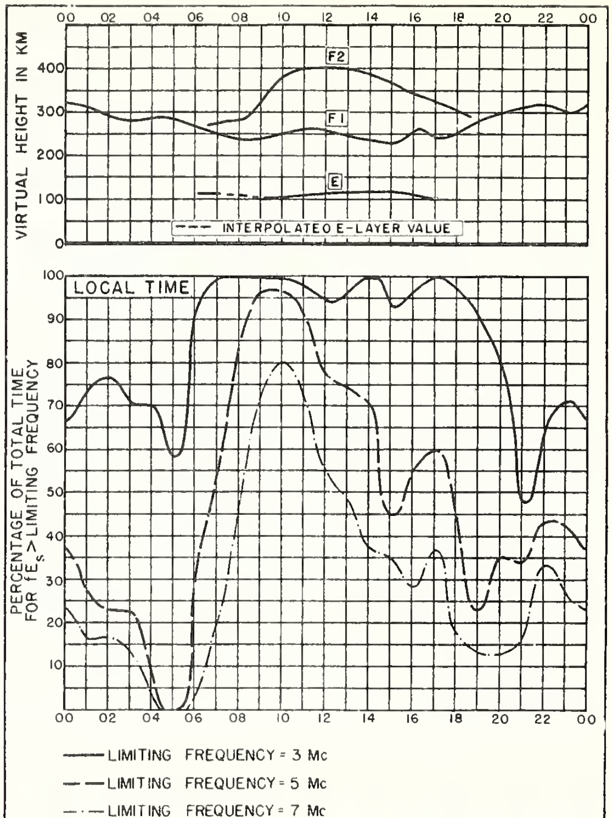

Fig. 49. CHUNGKING, CHINA JULY 1948

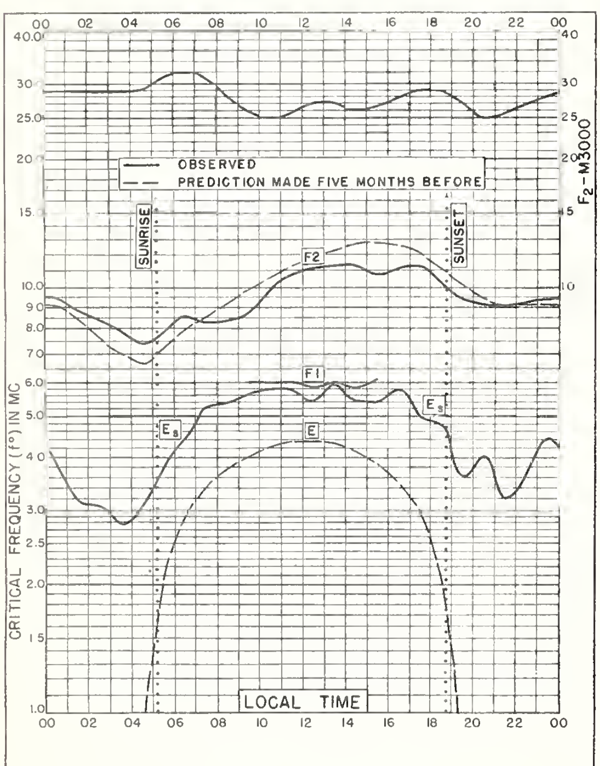

Fig. 50. OKINAWA I.
26.3°N, 127.7°E JULY 1948

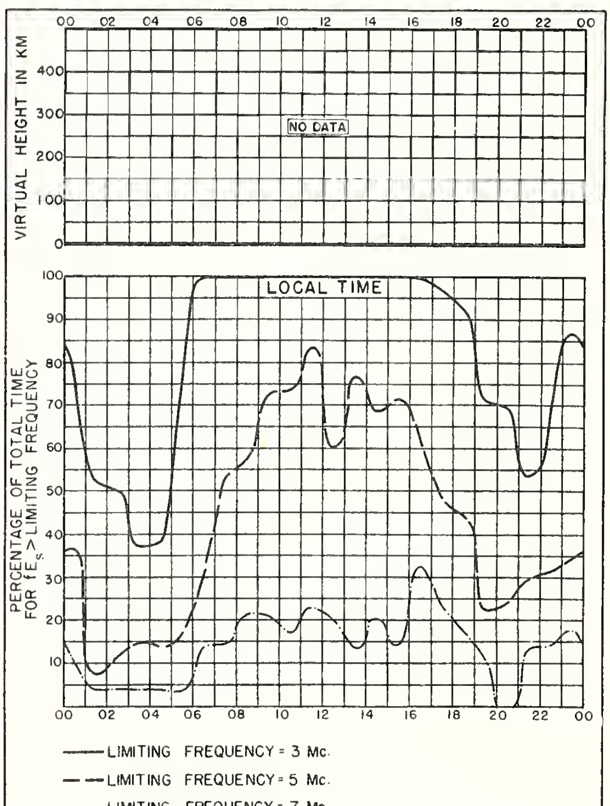

Fig. 51. OKINAWA I. JULY 1948

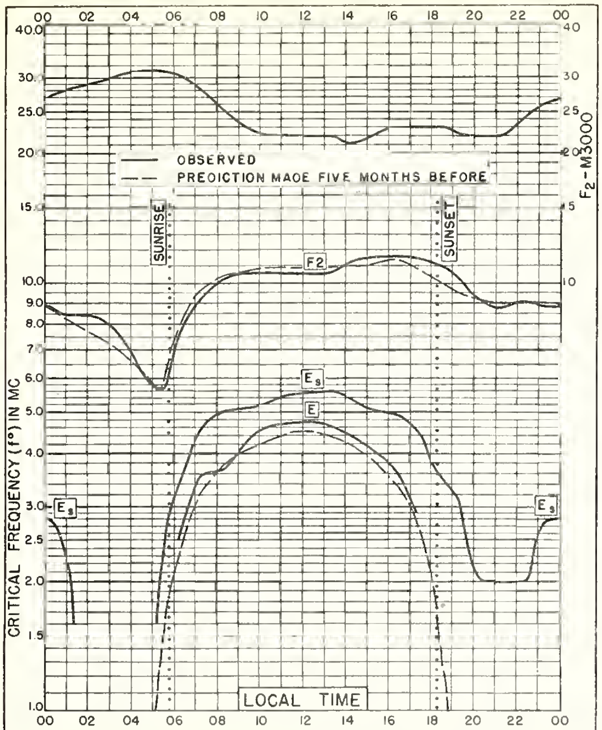

Fig. 52. LEYTE, PHILIPPINE IS.
11.0°N, 125.0°E JULY 1948

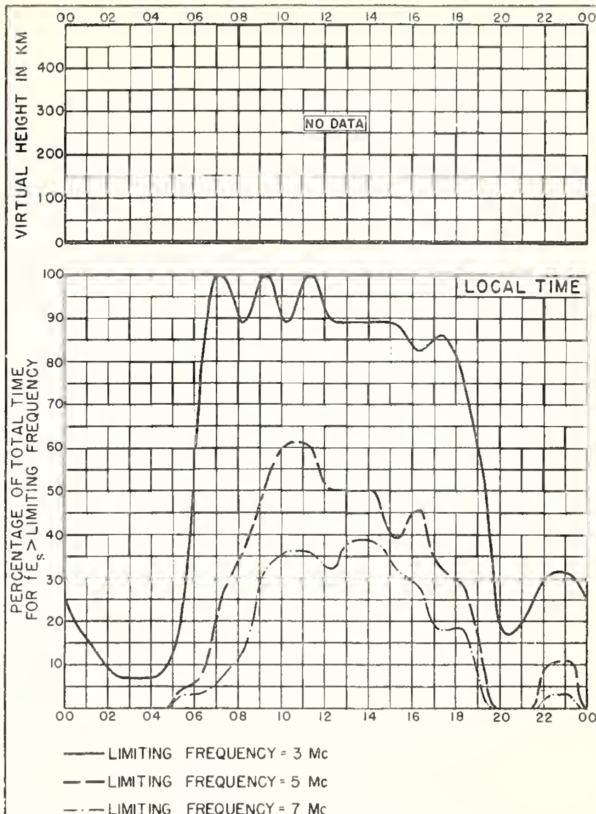

Fig. 53. LEYTE, PHILIPPINE IS. JULY 1948

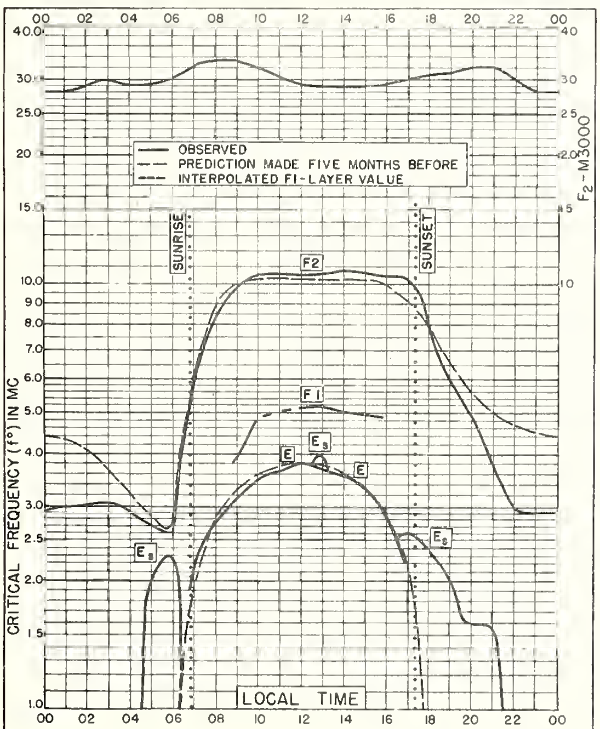

Fig. 54. JOHANNESBURG, U. OF S. AFRICA
26.2°S, 28.0°E JULY 1948

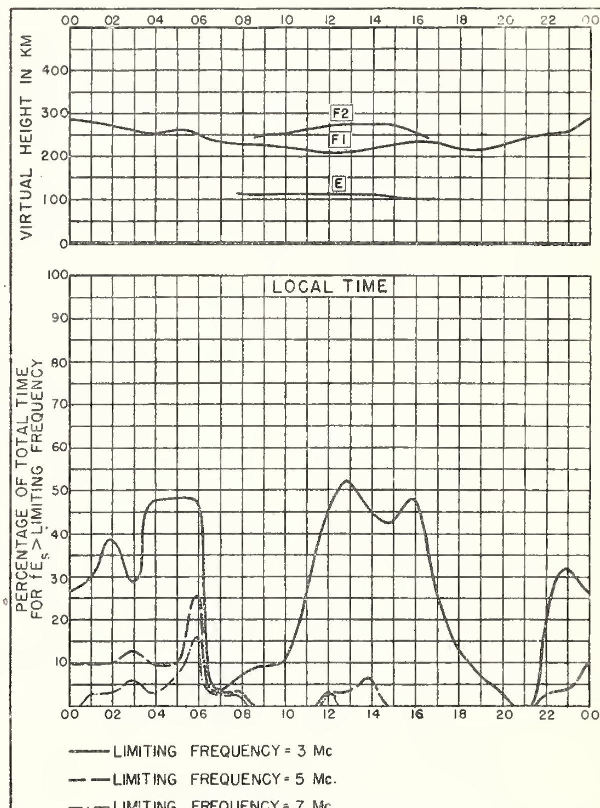

Fig. 55. JOHANNESBURG, U. OF S. AFRICA JULY 1948

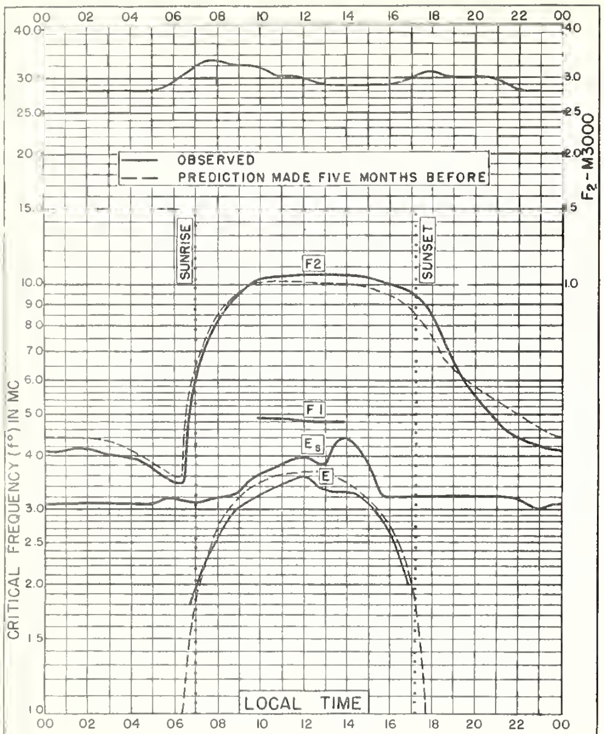

Fig. 56. WATHEROO, W. AUSTRALIA
30. 3°S, 115. 9°E JULY 1948

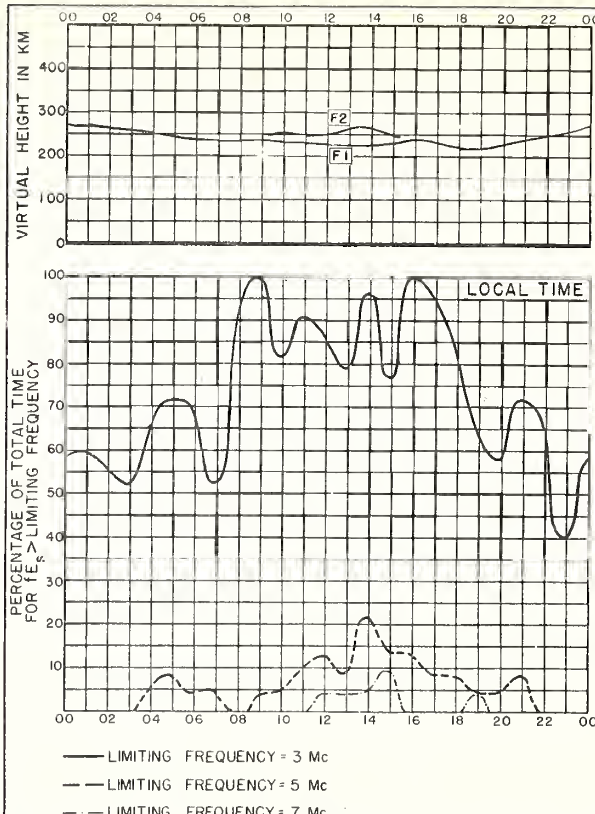

Fig. 57. WATHEROO, W. AUSTRALIA JULY 1948

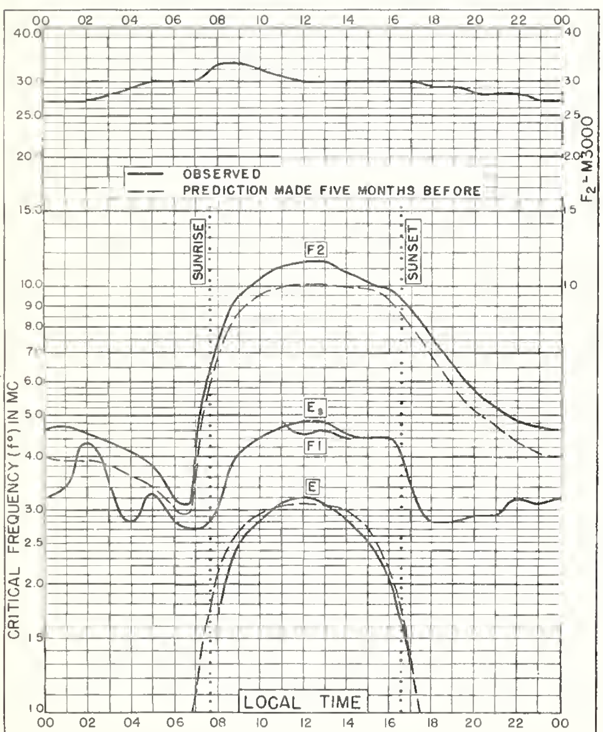

Fig. 58. CHRISTCHURCH, N. Z.
43. 5°S, 172. 7°E JULY 1948

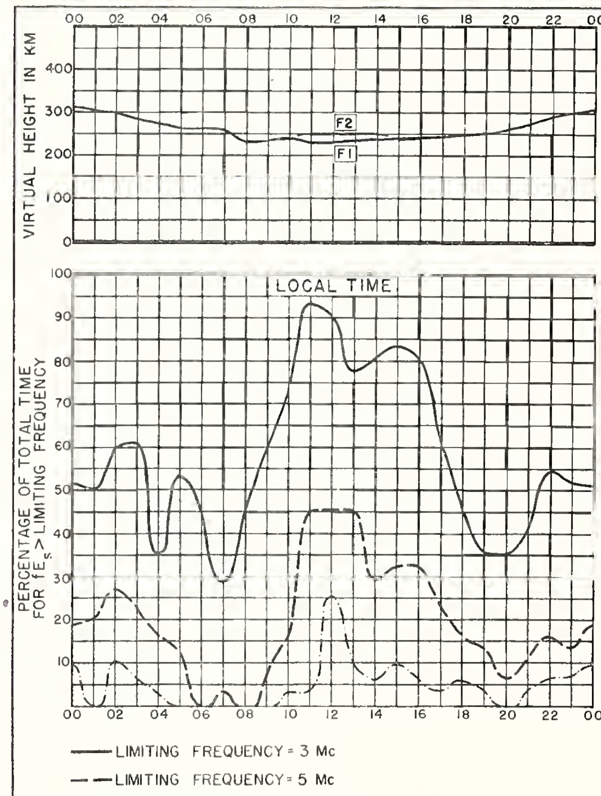

Fig. 59. CHRISTCHURCH, N. Z. JULY 1948

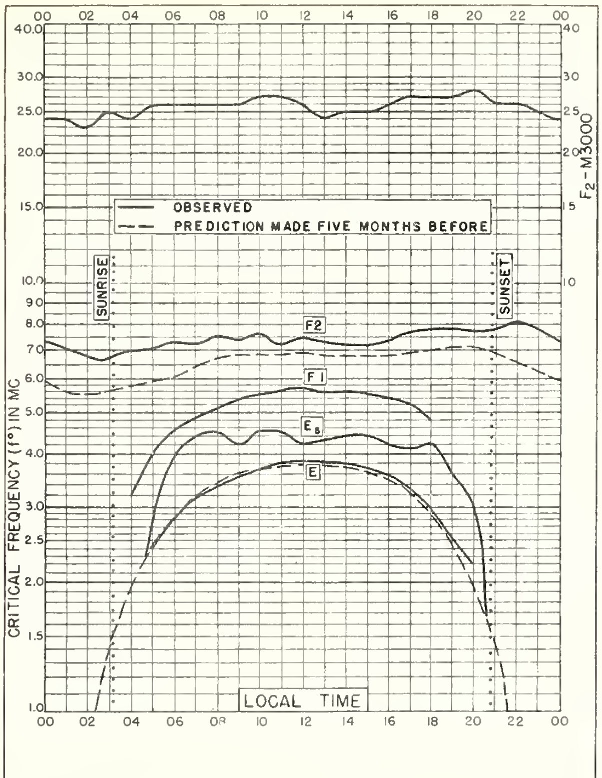

Fig. 60. FRASERBURGH, SCOTLAND
57. 6°N, 2. 1°W JUNE 1948

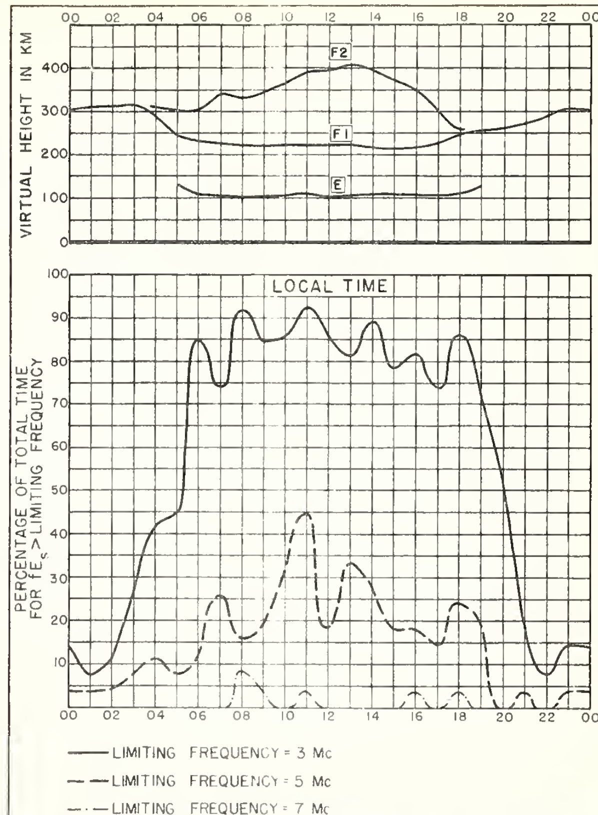

Fig. 61. FRASERBURGH, SCOTLAND JUNE 1948

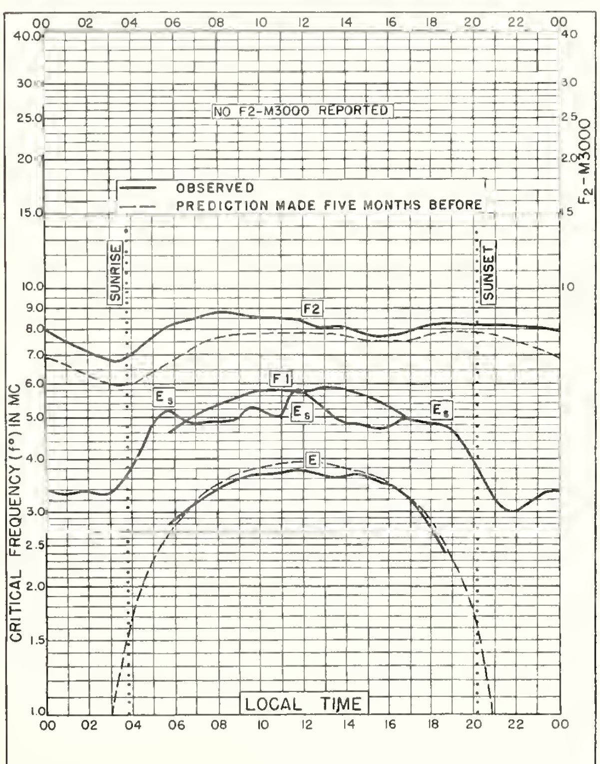

Fig. 62. LINDAU/HARZ, GERMANY
51. 6°N, 10. 1°E JUNE 1948

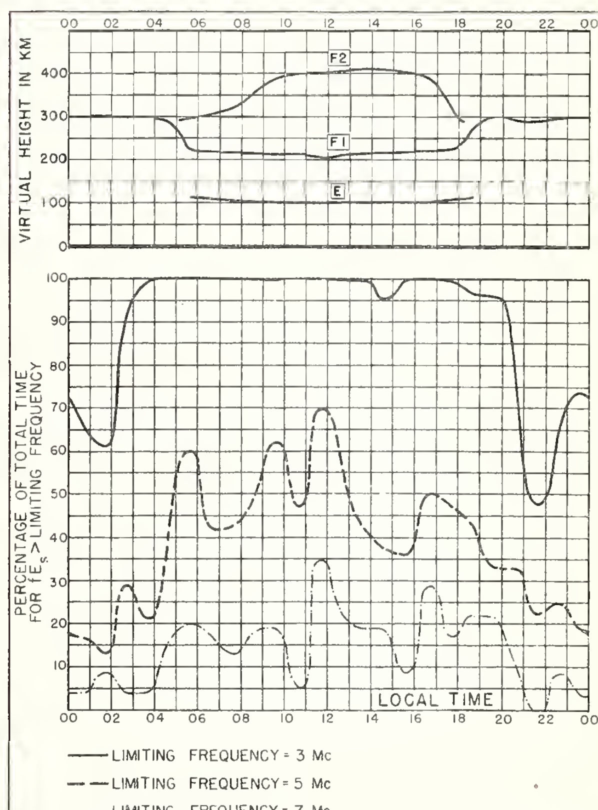

Fig. 63. LINDAU/HARZ, GERMANY JUNE 1948

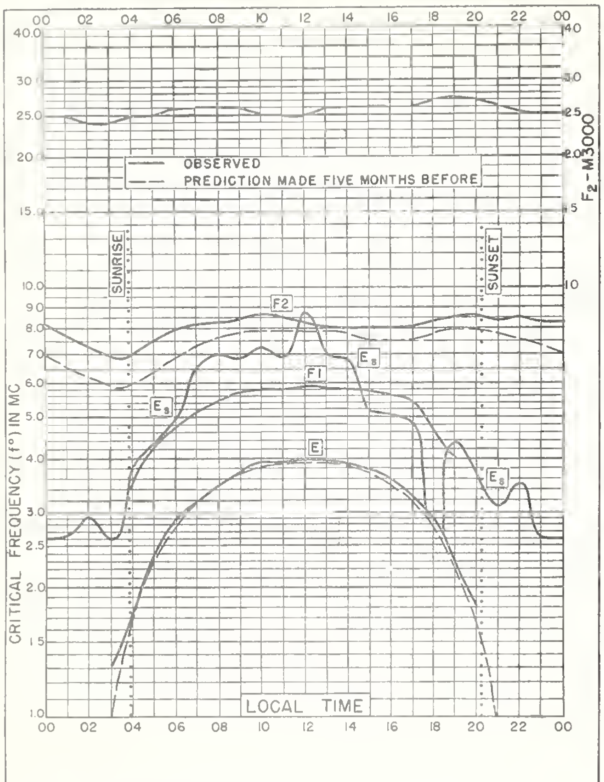

Fig. 64. SLOUGH, ENGLAND
51.5°N, 0.6°W JUNE 1948

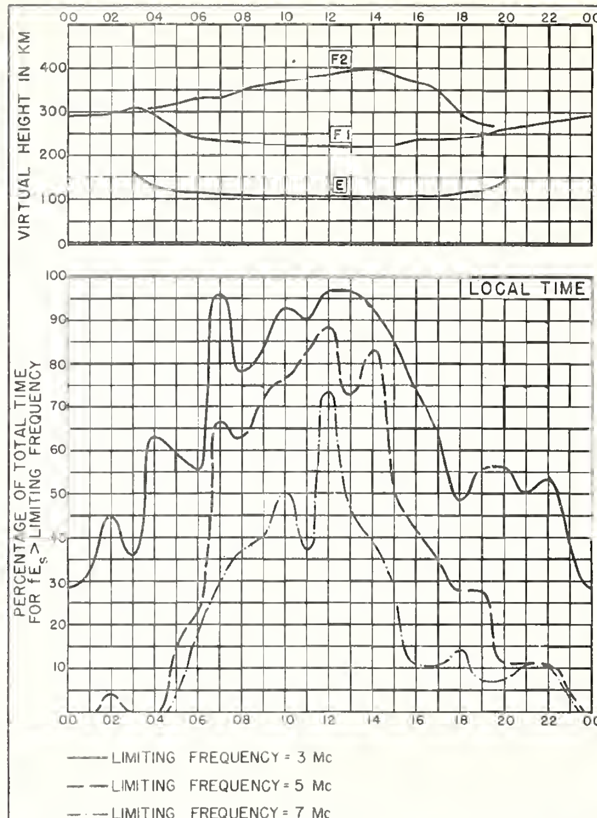

Fig. 65. SLOUGH, ENGLAND JUNE 1948

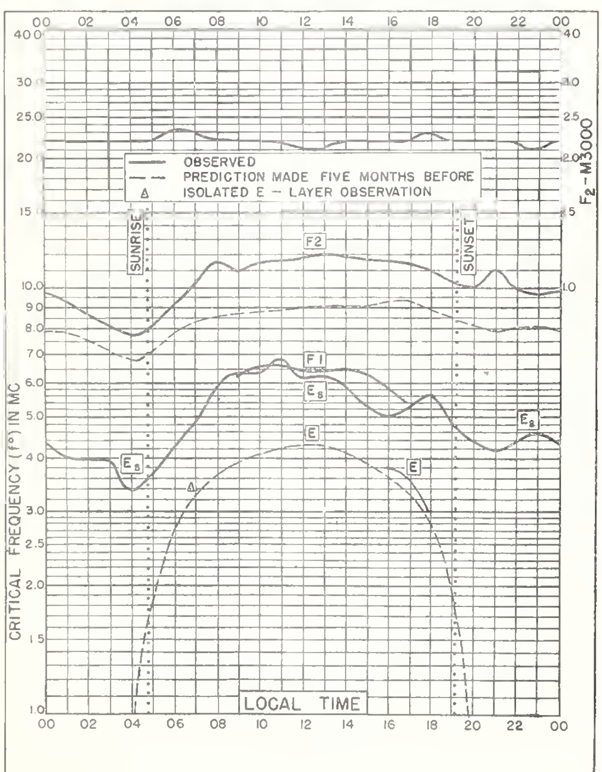

Fig. 66. LANCHOW, CHINA
36.1°N, 103.8°E JUNE 1948

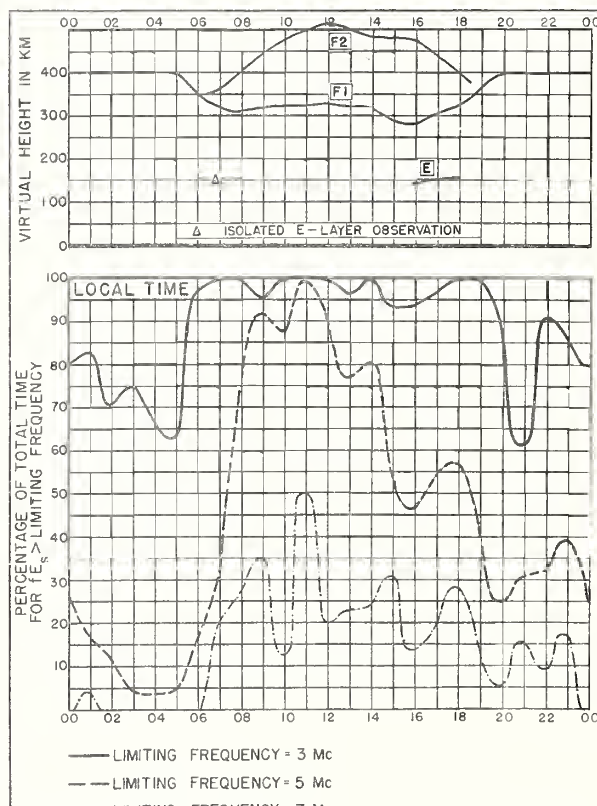

Fig. 67. LANCHOW, CHINA JUNE 1948

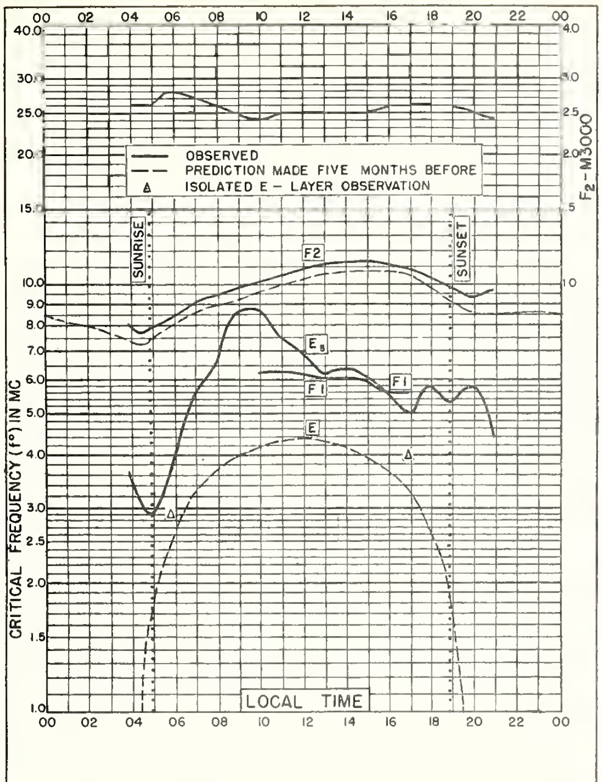

Fig. 68. NANKING, CHINA
32.1°N, 119.0°E JUNE 1948

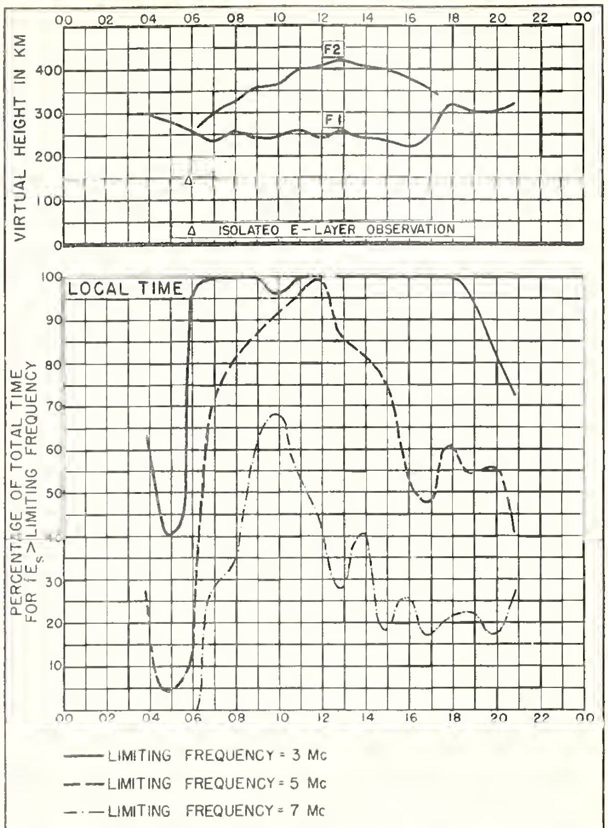

Fig. 69. NANKING, CHINA JUNE 1948

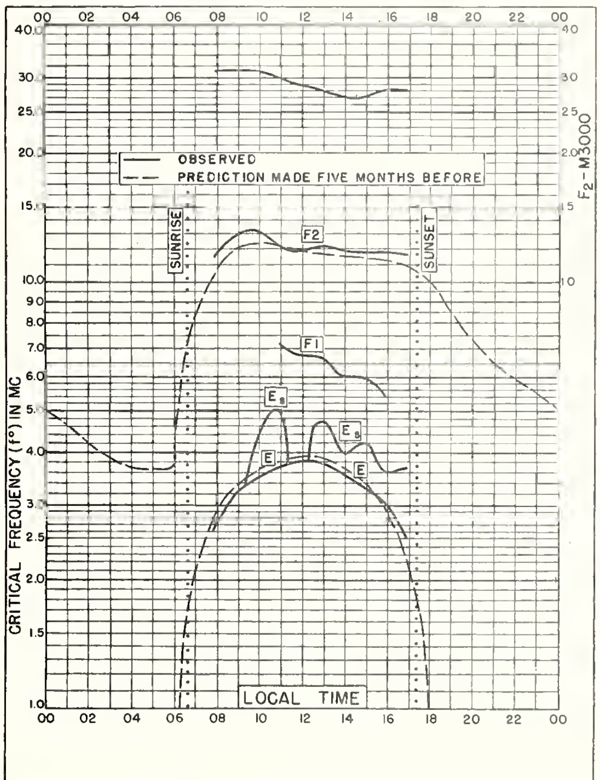

Fig. 70. RAROTONGA I.
21.3°S, 159.8°W JUNE 1948

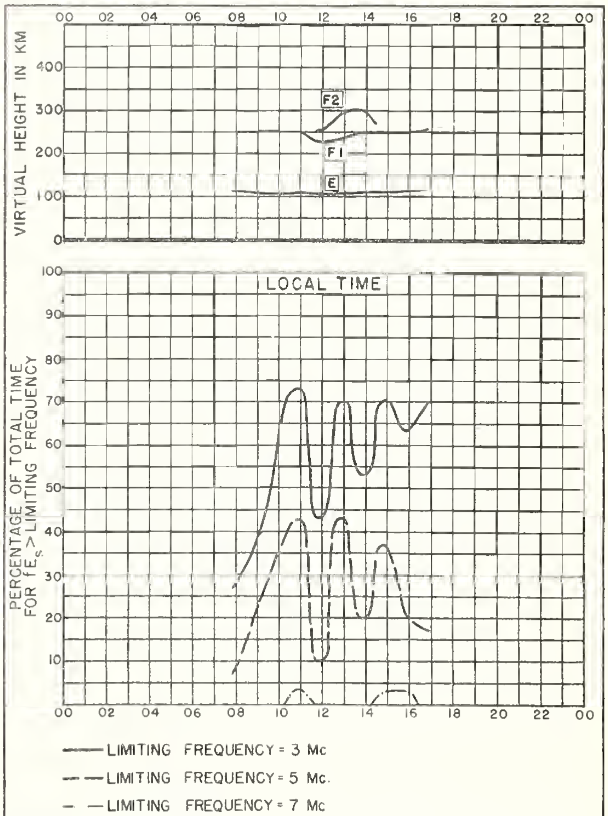

Fig. 71. RAROTONGA I. JUNE 1948

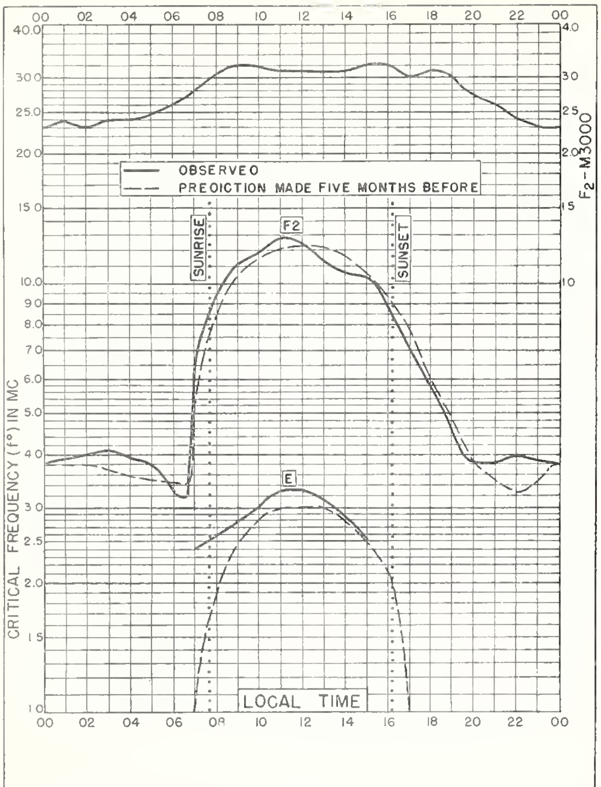

Fig. 72. FALKLAND IS.
51.7°S, 57.8°W MAY 1948

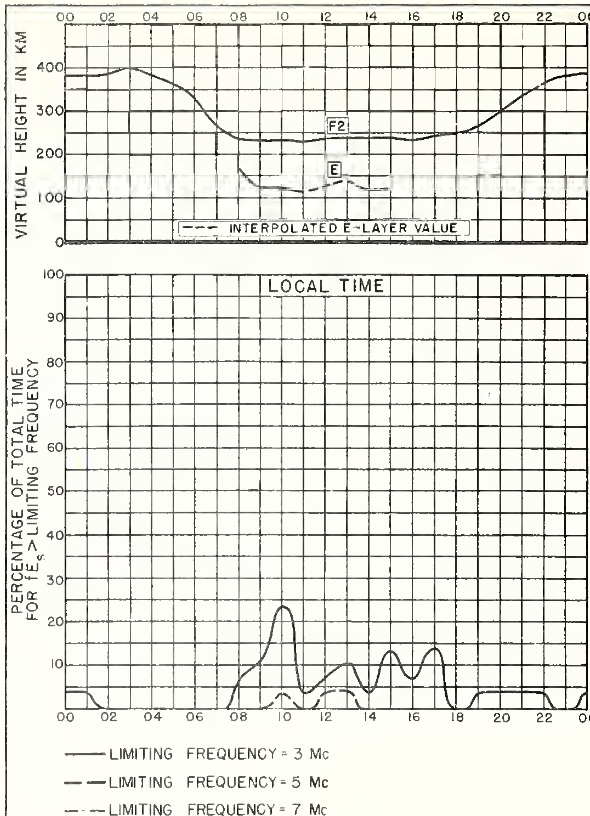

Fig. 73. FALKLAND IS. MAY 1948

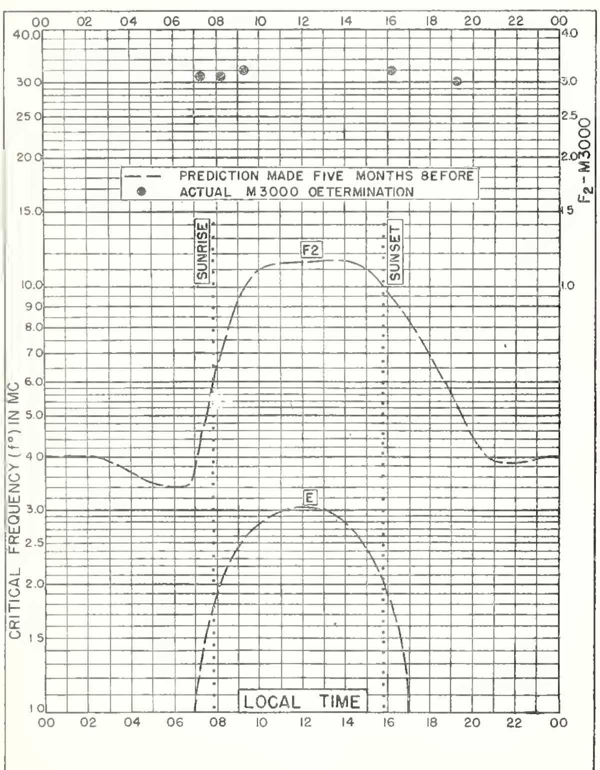

Fig. 74. BAGNEUX, FRANCE
48.8°N, 2.3°E DECEMBER 1947

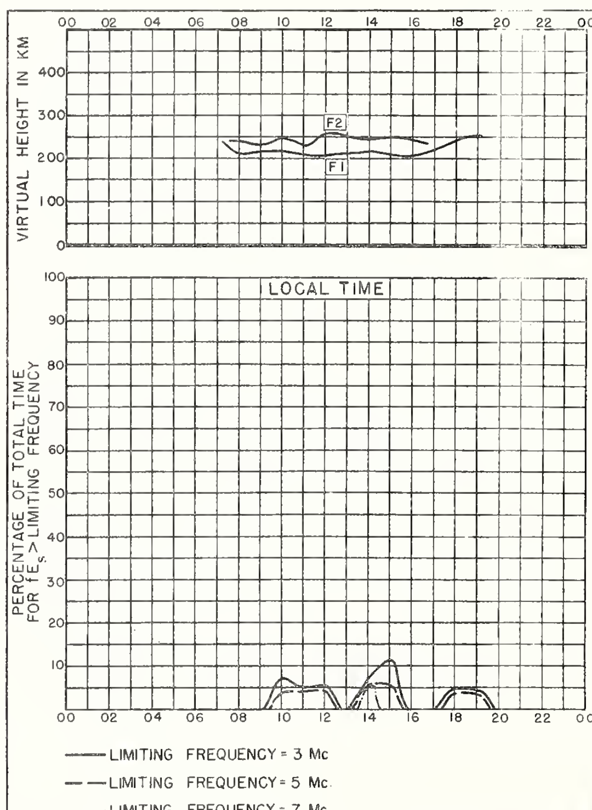

Fig. 75. BAGNEUX, FRANCE DECEMBER 1947

Index of Tables and Graphs of Ionospheric Data

in CRPL-F50

Index (CRPL-F50, continued)

CRPL and IRPL Reports

Daily:
Radio disturbance warnings, every half hour from broadcast station WWV of the National Bureau of Standards.
Telephoned and telegraphed reports of ionospheric, solar, geomagnetic, and radio propagation data.

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Monthly:
CRPL–D. Basic Radio Propagation Predictions—Three months in advance. (Dept. of the Army, TB 11-499-, monthly supplements to TM 11-499; Dept. of the Navy, DNC-13-1 ( ), monthly supplements to DNC-13-1.)
CRPL–F. Ionospheric Data.

Quarterly:
*IRPL–A. Recommended Frequency Bands for Ships and Aircraft in the Atlantic and Pacific.
*IRPL–H. Frequency Guide for Operating Personnel.

Nonscheduled reports:
CRPL–1–1. Prediction of Annual Sunspot Numbers.
CRPL–1–2, 3–1. High Frequency Radio Propagation Charts for Sunspot Minimum and Sunspot Maximum.
CRPL–1–3. Some Methods for General Prediction of Sudden Ionospheric Disturbances.
CRPL–1–4. Observations of the Solar Corona at Climax, 1944–46.
CRPL–1–5. Comparison of Predictions of Radio Noise with Observed Noise Levels.
CRPL–1–6. The Variability of Sky-Wave Field Intensities at Medium and High Frequencies.
CRPL–7–1. Preliminary Instructions for Obtaining and Reducing Manual Ionospheric Records.
NBS Circular 462. Ionospheric Radio Propagation.
NBS Circular 465. Instructions for the Use of Basic Radio Propagation Predictions.

Reports issued in past:
IRPL–C61. Report of the International Radio Propagation Conference, 17 April to 5 May 1944.
IRPL–G1 through G12. Correlation of D. F. Errors With Ionospheric Conditions.
IRPL–R. Nonscheduled reports:
R4. Methods Used by IRPL for the Prediction of Ionosphere Characteristics and Maximum Usable Frequencies.
R5. Criteria for Ionospheric Storminess.
R6. Experimental Studies of Ionospheric Propagation as Applied to the Loran System.
R7. Second Report on Experimental Studies of Ionospheric Propagation as Applied to the Loran System.
R9. An Automatic Instantaneous Indicator of Skip Distance and MUF.
R10. A Proposal for the Use of Rockets for the Study of the Ionosphere.
R11. A Nomographic Method for Both Prediction and Observation Correlation of Ionosphere Characteristics.
R12. Short Time Variations in Ionospheric Characteristics.
R14. A Graphical Method for Calculating Ground Reflection Coefficients.
R15. Predicted Limits for *F*2-layer Radio Transmission Throughout the Solar Cycle.
R16. Predicted *F*2-layer Frequencies Throughout the Solar Cycle, for Summer, Winter, and Equinox Season.
R17. Japanese Ionospheric Data—1943.
R18. Comparison of Geomagnetic Records and North Atlantic Radio Propagation Quality Figures—October 1943 Through May 1945.
R19. Nomographic Predictions of *F*2-layer Frequencies Throughout the Solar Cycle, for June.
R20. Nomographic Predictions of *F*2-layer Frequencies Throughout the Solar Cycle, for September.
R21. Notes on the Preparation of Skip-Distance and MUF Charts for Use by Direction-Finder Stations. (For distances out to 4000 km.)
R22. Nomographic Predictions of *F*2-layer Frequencies Throughout the Solar Cycle, for December.
R23. Solar-Cycle Data for Correlation with Radio Propagation Phenomena.
R24. Relations Between Band Width, Pulse Shape and Usefulness of Pulses in the Loran System.
R25. The Prediction of Solar Activity as a Basis for the Prediction of Radio Propagation Phenomena.
R26. The Ionosphere as a Measure of Solar Activity.
R27. Relationships Between Radio Propagation Disturbance and Central Meridian Passage of Sunspots Grouped by Distance From Center of Disc.
R28. Nomographic Predictions of *F*2-layer Frequencies Throughout the Solar Cycle, for January.
R30. Disturbance Rating in Values of IRPL Quality-Figure Scale from A. T. & T. Co. Transmission Disturbance Reports to Replace T. D. Figures as Reported.
R31. North Atlantic Radio Propagation Disturbances, October 1943 Through October 1945.
R32. Nomographic Predictions of *F*2-layer Frequencies Throughout the Solar Cycle, for February.
R33. Ionospheric Data on File at IRPL.
R34. The Interpretation of Recorded Values of *fEs*.
R35. Comparison of Percentage of Total Time of Second-Multiple *Es* Reflections and That of *fEs* in Excess of 3 Mc.
IRPL–T. Reports on tropospheric propagation:
T1. Radar operation and weather. (Superseded by JANP 101.)
T2. Radar coverage and weather. (Superseded by JANP 102.)
CRPL–T3. Tropospheric Propagation and Radio-Meteorology. (Reissue of Columbia Wave Propagation Group WPG-5.)

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